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XIII.

CHRONIC NASOPHARYNGEAL BURSITIS. (THORN-WALDT'S DISEASE.)*

BY DUNBAR ROY, A. B., M. D.

ATLANTA.

CLINICAL PROFESSOR OF EYE, EAR, NOSE AND THROAT DISEASES IN THE ATLANTA COLLEGE OF PHYSICIANS AND SURGEONS; OCULIST AND AURIST TO THE GRADY HOSPITAL; FELLOW OF THE AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY; ASSOCIATE MEMBER OF THE AMERICAN OPHTHALMOLOGICAL SOCIETY, ETC.

A bursa is defined in Foster's Encyclopedic Dictionary to be "a pouch, especially a synovial sac." Bursae, as is well known, exist in various portions of the body, especially under the tendons of muscles around the various joints. The presence of these can sometimes be traced and their etiology determined. There are other bursae, however, which are congenital, although some of these can occasionally be traced to an arrested development. Among these latter is the *bursa pharyngea* which occurs in the vault of the pharynx exactly in the median line. Adenoid tissue can be found in the nasopharyngeal space of nearly every individual, varying of course both in the

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amount and the location. In children we believe that adenoid tissue is universally present, and this statement is made by one who practices in a southern climate. I am firmly convinced that the climate does not produce adenoids, but that it influences its growth and morbid state must be apparent to all. My experience shows that these growths occur in the black as well as in the white race notwithstanding that some southern rhinologists affirm that they never occur among the negro. We believe that it is just as natural for adenoids to be present in children as faucial tonsils, and like the latter there are great variations in size. It is not necessary to remove all faucial tonsils nor is it necessary to operate on every case of adenoids, and yet we think it is a good deal better to scrape too often the nasopharynx in children than not to scrape often enough. Harm is never done by the quick use of a Gottstein's curette, but great harm frequently follows its non-use.

As individuals grow older this collection of adenoid tissue in the vault gradually becomes smaller, depending in a great measure upon the presence of that innate tendency toward a catarrhal condition.

The larger the amount of adenoid tissue present in childhood, the slower is its disappearance, which of course never disappears entirely, but is merely transformed. If the patient has been afflicted with a large amount of adenoid tissue in childhood and this was not removed surgically at that period, experience teaches me that such will have trouble in the nasopharynx nearly all of his or her life. This same gelatinous polypoid tissue in childhood will become firmer and more fibrous as the individual grows older, and instead of its being globular or cushion-like, there will be formed bands of fibrous tissue running in the long axis of the pharynx. Between these bands secretion will lodge which will be exceedingly difficult of removal.

Crypts, which normally exist in adenoid tissue, counterparts of the crypts in the faucial tonsils, exist even after all the adenoids have seemingly disappeared and such always affords a nidus for constant irritation and for the production of acute follicular naso-pharyngitis. I have rarely failed to find the remnants of some adenoid tissue

in every patient who complained of nasopharyngeal catarrh. Rhinologists owe much to Luschka, who was the first to describe so minutely the anatomy of the nasopharynx. Anatomists generally agree that there are two kinds of glands in that region: (1) The conglomerate, occurring especially round the mouths of the eustachian tube and on the posterior surface of the soft palate, and (2) the follicular glands which are more especially bunched together just at the center of the vault and commonly known as Luschka's tonsil. This third tonsil varies considerably in size and formation, being sometimes round or oval and then again linear with distinct crevices between the bands. "At the lower portion of the pharyngeal tonsil, in the median line, a small opening is sometimes present which leads into a sac about three-fourths of an inch long and one-fourth of an inch wide, known as the pharyngeal bursa, the name being given to it by Luschka from a term already used by Meyer in description of pharynges of certain mammalia. The anterior wall of the bursal sac is covered with glandular tissue, while the posterior wall is joined by a ligament to the basilar process of the occipital bone. Some observers deny the existence of this sac as a distinct anatomic structure, holding that this bursa is simply a median fissure of a normal pharyngeal tonsil, the fissure being the result of adhesions to the superficial layers of the glandular tissue" (Burnett's System.). These fissures in Luschka's tonsil vary considerably in different individuals and their presence to any large extent is due in my opinion to its having been a neglected case of adenoids in childhood.

Whether or no the pharyngeal bursa exists, is still a mooted question, and after the examination of the nasopharyngeal space in several cadavers, I was unable to discover a distinct pouch. This, however, does not invalidate the fact of its existence. In many of those cases where there were decided objective symptoms of nasopharyngeal catarrh, I have been able to find almost universally the presence of this opening in the vault entirely different in appearance from the slit-like processes so frequently found in Luschka's tonsil.

In 1885, Thornwaldt, of Danzig, published an extensive

article in which he describes still more minutely than Luschka had done in 1868, the pharyngeal bursa. The main object of his paper was to show that the large majority of nasopharyngeal catarrhs were due to the presence and diseased condition of this bursa pharyngea. Since that time such a pathologic condition has been spoken of as Thornwaldt's disease.

There is a great diversity of opinion among anatomic investigators as to whether such a bursa exists. In 1878, Ganghofer after much anatomic investigation, published an extended article in which he denied the existence of the bursa pharyngea in the form described by Luschka, but described it himself "as a simple, more or less marked depression of the mucous membrane, having no great depth, and not connected with the basilar process, as claimed by Luschka, by means of a strip of cellular tissue."

In 1887, Schwabach, of Berlin, published his investigations on this subject, these having been made on cadavers to determine the true character of the pharyngeal bursa. He examined 100 adult heads, twenty-eight children's and two fetal heads. From his examination he found the same condition as described previously by Ganghofer and that was "a series of deep, irregular and shallow clefts, forming ridges of various heights and breadths, which gradually disappear as age advances." This depression is well shown in the accompanying plate. In ten of the twenty-three preparations examined, Schwabach found more or less defined evidences of the original clefts in ten, and in these the middle cleft was the one partially or completely retained, while a few showed a number of openings of varying size." He concludes therefore "that the bursa of Thornwaldt is but the remnant of the middle cleft, the 'purse' or blind pouch being the posterior end, formed by the partial agglutination of the margin, and that it is but an intergral portion of the pharyngeal tonsil, taking part in the diseases to which the latter is subject, but not possessing a pathological character of its own."

Very pertinent to these latter statements are those of Trautmann, "that various authors relying solely upon rhinoscopic examinations, had arrived at erroneous conclusions when studying the hyperplasia of adenoid vegetations; and

these differed completely from those arrived at when the studies were conducted upon the cadaver."

From this we see that there is as yet much diversity of opinion as to the part played by the bursa in the production of post-nasal catarrh. With Schwabach are associated Wendt, Ganghofer, Trautmann and others, while equally as close clinical observers such as Thornwaldt, Luc, Schmiegelow, Massuci and Gradle have found that their investigations warrant them in attaching much importance to the presence of this bursa pharyngea. In my own mind I am firmly convinced that certain cases of nasopharyngeal catarrh are dependent upon some pathologic condition of this bursa for they all surround themselves with unique objective symptoms, distinctively characteristic.

Within the last three years I have had two cases whose clinical pictures were almost identical in character and which showed a condition of the nasopharynx peculiar to themselves. These will be briefly narrated:

Mr. L., lawyer, age 27, consulted me on account of an harassing scabby accumulation in his nasopharynx. He gave the following history: Had never had a spell of sickness in his life, nor was he susceptible to colds. Health almost perfect except for this post-nasal accumulation. Was of a nervous temperament. Had no discharge from the nasal cavities, but behind these there was a constant burning sensation. About once every second day, in trying to clear the post-nasal space, he would cough out a scab the size of a ten cent piece, dry on one side and moist on the other where it had been attached. It always came from the same spot, always had the same formation, and he was always conscious of its presence. The patient had an excellent throat to examine, having such control over his soft palate that I could use simultaneously both the mirror and cotton probe. This gave me an excellent opportunity to apply the treatment. I found a post-nasal scab situated at the vault of the nasopharynx, just in the center and little below the nasal septum. No secretion could be seen anywhere else. This scab was removed with a piece of cotton on the end of a curved applicator, and from its point of removal was seen a depression into which the end of my little finger would probably fit, at the center of

which was found a minute opening. This opening was entirely different from the slits found when there are remnants of adenoid tissue left, for in this case the post-nasal space seemed everywhere free from glandular tissue. Nor was there any accumulation in Rosenmueller's fossa. The nasal cavities appeared perfectly normal. Here was a case to my mind different from the ordinary post-nasal catarrh, being entirely free from the objective appearances usually found in that condition. My own diagnosis was that of chronic inflammation of the pharyngeal bursa. The prognosis in these cases as to absolute cure is exceedingly unfavorable, and I was fully aware that I had a hard case to deal with.

The treatment consisted in daily cleansing of the post-nasal space with equal parts of peroxide of hydrogen and water. This the patient accomplished himself with a post-nasal atomizer. This was easily done because of the great tolerance to instrumental manipulation in this region. I myself used all the well-known remedies, such as varying solutions of nitrate of silver, iodin and iodid of potash solutions, ichthyol, chromic acid, and finally the electro-cautery. Curetting was not resorted to, because there was no indication for this procedure. The patient improved some, but his condition was never cured, and he finally passed from under observation.

Case II. This was one quite similar to the first.

Mrs. L., age 33, consulted me for symptoms which annoyed her similar to the one above. This lady was quite a vocalist, having a beautiful contralto voice. She complained of an intense burning pain behind the nose and the presence of secretions in the same region which usually came away after thorough douching in the morning. This condition she said had been present for two years, but she was able to dislodge the secretions after large amounts of warm salt water had been passed through the nose. The secretion always came away in the form of a distinct scab. Her general health was excellent, which was well exemplified in her physique. On examination the nasal cavities appeared normal, as also the oropharynx and larynx. This patient also had excellent control of her throat for examination and instrumental manipulation. The only pathologic condition seen was a depression in the

median line of the vault just back of the septum, in which was seen some dirty yellowish secretion. This was removed with a cotton applicator, revealing a raw, bleeding surface. An opening, similar to the one seen in the first case, was found at the lower end of this depression into which the probe could be passed. This patient was treated with various remedies with varying success. She is still under treatment.

Since this time I have had three other cases.

This paper is more for the purpose of eliciting a discussion than the advancing of any new ideas, and I trust that the fellows of this society will give us the benefit of their own clinical experience with such cases. These two cases which have been reported, present an entirely new type of post-nasal trouble, different from the ordinary post-nasal catarrh where adenoids are present or where there is a distinct nasal lesion.

From objective symptoms present, these two cases offer all the features of that pathologic condition described by Tornwaldt, and every clinical feature of the case points to a diseased state of the pharyngeal bursa. Those who deny the existence of this pathologic condition as a distinct entity, I am sure base their opinions on anatomic investigation, and not on clinical facts. Such cases when once seen, are readily recognized, because of the great similarity in both their objective and subjective symptoms. The presence of this central depression, the opening at the lower portion from which in one case mucoid matter exuded, the irritated condition of this socket, the presence of a firmly imbedded scab, these are symptoms distinctly characteristic of this peculiar condition.

Whether the so-called bursa pharyngea is a distinct bursa or blind pouch in the mucous membrane, it is certainly the cause of a peculiar form of naso-pharyngeal catarrh. My own idea is that this bursa or pouch is but rarely present normally, but when it is, especially if there be any naso-pharyngeal irritation present, and also if there be remnants of old adenoid tissue, it is apt to take on a catarrhal condition and produce those symptoms as were described in the two cases above.

I do not agree entirely with Delavan, who said in a paper read in 1894, that "the so-called Thornwaldt's disease ap-

pears to be nothing more than neglected adenoid hypertrophy."

There must be something more present besides neglected adenoid hypertrophy to produce this pathologic condition, for too many neglected cases have been seen where none of these symptoms were present. Nor do I agree with Hajek, of Vienna, who believes "that Thornwaldt's theory as regards the recessus medius should be set aside, since the identical trouble described by him as limited to that crypt, could also be observed in other recesses of the nasopharynx." This is no theory, but a clinical fact, as can be demonstrated on any typical case. Nor can you find similar conditions in other recesses of the nasopharynx as the author holds, for this median recess has a pathologic formation *sui generis*.

We have all seen these recesses in old cases of neglected adenoids, but the appearance of such even when there is much catarrhal trouble, is entirely different from the present condition under discussion.

In looking up the literature on the subject, there was found a pretty evenly divided opinion among competent observers as to the non-existence of this peculiar pathologic condition, and yet I think this is largely due to the fact that the condition itself is not frequent and probably many observers did not recognize it as a distinct entity.

I cannot agree with Thornwaldt in attributing every case of post-nasal catarrh to this condition.

It was the non-success of the treatment in the two cases reported which caused me to study more minutely their clinical features. To treat the post-nasal space successfully you must be able to inspect its surface thoroughly and be able to make your applications just to the points desired. This is not always easy unless it is in a patient who has perfect control of his soft palate. I think that the method in vogue of mopping the nasopharynx without seeing the point for which the application is intended, is both painful to the patient and unscientific in its purpose. If the patient has not enough control of the muscles of the throat to allow the applicator and post-nasal mirror to be used at the same time, then the palate retractor should be brought into requisition and the parts treated properly.

I could never agree with Ziem, of Danzig, who advocates

"the routine employment of palpation of the nasopharynx as superior in every way to posterior rhinosecopy." I believe that the reason non-success so frequently results in the treatment of nasopharyngeal troubles, is because this region is not examined thoroughly enough.

The best treatment which I found in addition to the thorough cleaning which the patient accomplished at home, was an application of a solution of nitrate of silver, 60 grs. to the ounce, directly to the sulcus, followed by thorough spraying of the nasopharynx with *hot melted vaselin* and orthoform. The curette and electro-cautery point were tried. Thornwaldt recommends the destruction of the bursa by means of these latter methods. My own success was not at all gratifying. Schmiegelow of Copenhagen, has reported three cases of obstinate post-nasal catarrh cured by cauterizing the bursa. Such success however has not been obtained by many other observers and in fact a majority report a rather small proportion of cures.

The prognosis as to ultimate cure in these distinctly characteristic cases is certainly not brilliant, and the laryngologist will be taxed to his utmost to place the patient in even a comfortable condition.

Grand Opera House Blk.

XIV.

TRAUMATIC AFFECTIONS OF THE UVULA.

BY SEYMOUR OPPENHEIMER, M. D.

NEW YORK.

INSTRUCTOR IN LARYNGOLOGY, UNIVERSITY MEDICAL COLLEGE;
LARYNGOLOGIST TO THE UNIVERSITY MEDICAL COLLEGE DIS-
PENSARY; CONSULTING LARYNGOLOGIST AND OTOLOGIST
TO THE HEBREW SHELTERING GUARDIAN SOCIETY.

From its peculiar position in relation to the oropharynx, the uvula would appear to be extremely susceptible to severe traumatic influences, as it is constantly subjected to minor traumatisms in deglutition and excessive vocal efforts, yet reported cases of damage to this portion of the pendulous palate are comparatively rare, the text books containing little or no reference to traumatic affections. The anatomic structure of the uvula and its mobile characteristics render it to a great degree exempt from traumatism otherwise influencing the tissues in its immediate proximity. The mucous membrane covering it, especially at the tip, is of firmer consistency than that of the surrounding tissues, and is also less dense in structure. As an additional protection against damage from the lodgment or impact of foreign bodies, is the absence of glandular stomata or crypts as occur on the pharyngeal walls and tonsils.

Pathologic alterations of the contour and structure of the uvula, as the result of traumatic influences, may best be classified from an etiologic standpoint and may be divided into five classes. The first is extensive injury the result of forcible contact with resisting foreign bodies, the soft tissues of the uvula being caught between the foreign body and the pharyngeal wall. The second class embraces those cases in which the mucous membrane is pierced by a minute body such as bristle or stiff hair. The third class embraces the more frequent cases in which as the result of swallowing caustic materials and also in the application of caustics to adjoining regions, the uvular tissues become subjected to chemical traumatism. The

fourth class is seen in accidental cases in which this portion of the palate is subjected to traumatism as the result of operative procedures directed to the tonsils, larynx or naso-pharynx, the uvula accidentally becoming engaged in the handle of the forceps or whatever instrument of similar nature is being used. The fifth class results from indirect traumatic influences, being by far the most important from the standpoint of the individual as it occurs in singers as the result of excessive or ill advised efforts at vocal exercise.

As illustrative of the amount of damage that may be done to the uvula as the result of forcible contact with a hard, resisting foreign body, the following case is presented: C. J., colored, male, age thirty years. Was seen February 23, 1899, when he presented the following history. While under the influence of alcohol and smoking a corn cob pipe, he ran against a stone wall on the evening previous to which he was seen. The stem of the pipe was violently forced into his throat and severe pain and bleeding ensued, which lasted the entire night. The pain was intense and was referred to the base of the tongue and pharynx and prevented the taking of food either solid or liquid; even the mere act of swallowing being impossible on account of the increase of pain produced at such times. The pipe had been held on the left side of the mouth and examination showed a deep laceration on the same side of the tongue, and after inflicting this damage the stem of the pipe had evidently passed backward and jammed the uvula against the posterior pharyngeal wall. The uvula was perforated directly in the median line two millimeters below its junction with the soft palate, the perforation being partial, inasmuch as it did not go through the mucous membrane of the posterior aspect, and corresponded in shape and size to the stem of the pipe. Inflammation and edema were severe and prevented to a great extent the opening of the mouth, but hemorrhage had spontaneously ceased. The parts were painted with ichthyol and an astringent mouth wash was given, with prompt relief in a few hours and the case made an uninterrupted recovery in a few days.

It is of interest to note in cases of severe traumatism of the uvula, that edema is not as well marked as in appar-

ently more trifling injuries, scarification rarely being necessary, as free bleeding has already taken place, and the amount of swelling is limited. Another point of interest is the rapid improvement without the least suggestion of septic infection, following the use of antiseptic and astringent applications. It is also remarkable in these cases of severe local injury, with what rapidity the healing of the lacerated or punctured wound takes place; this case, being typical of its class, well shows this marked recuperative power, as in forty-eight hours after the patient was first seen all the symptoms had disappeared, and but slight congestion remained around the wound.

Of more frequent occurrence than severe lacerated or punctured wounds of the uvula, are the minute lacerations of mucous membrane and oftentimes of the deeper strictures, as the result of small foreign bodies such as a bristle from a tooth brush, etc. Belonging to this class is a case reported by Fisher (1) in which the uvula was pierced by a bristle; severe hemorrhagic infiltration occurred, the uvula being greatly swollen and dark purple in color from the large amount of blood effused into the tissues. Small foreign bodies producing traumatic injuries of the uvula may induce pathologic alterations seemingly out of all proportion to their size. When the foreign material such as a minute fish bone merely enters the surface epithelium and does not penetrate into the deeper tissues, a slight grade of inflammation results, dependent upon the length of time the foreign body remains in situ, and then rapidly disappears without further treatment as soon as the offending particle is removed. The subjective symptoms are, however, most annoying, as the patient complains of the presence of a foreign body even for a considerable time after all traces of it have been removed and the dysphagia, peculiarly, is very rarely referred to the uvula directly, but most frequently to the tonsillar or epiglottic regions. The characteristic features predominating when a minute sharp pointed body enters deeply into the uvular structures, are edema and extravasation of blood. The uvula becomes enormously increased in size and as a rule hemorrhagic extravasation of the uvular tissues is nearly always of traumatic origin.

The general symptoms of the varied traumatic infamma-

tions of uvula, are in the majority of cases not well marked except when traumatism is severe, when the inflammatory reaction involves the adjacent parts by continuity of structure and pharyngitis results, attended with a moderate degree of temperature such as occurs in the regular course of acute non-specific inflammation of this particular region. Within a few minutes or hours after the infliction of the injury and dependent upon its extent, the patient complains of a sense of pharyngeal discomfort, which may, in severe cases, as the one reported here, amount to intense pain. The pain is constant, but becomes markedly exaggerated during deglutition and food is refused for a limited time until the acute symptoms subside. Dependent upon the amount of edema and inflammatory reaction are the changes in the voice. The functions of the uvula are for the time abolished, the resonating capacity of the parts is impaired, and articulation becomes thick from the swelling of the uvula and from the increased amount of mucous collecting in the oro-pharynx, due to indirect stimulation of the secretory glands. On account of the increased amount of saliva and mucous, there is a constant desire to swallow, this also being enhanced by the sensation of the presence of a foreign body, which seems a constant local symptom in practically all cases. This foreign body sensation in a few instances may be due to the presence of a minute particle of adventitious material partially embedded in the mucous membrane and, from the constant motion and enlargement of this part, the tissues in its immediate locality are irritated by the foreign matter abrading their surface with every act of swallowing, thus keeping up the inflammation. In the majority of cases, however, this is but a nervous element, but in all, careful search under good illumination should be made, and any adventitious material should immediately be removed.

Dyspnea only occurs when the tissues are enormously increased in all their dimensions by the effusion of blood or serum into the structure of the uvula; it may be extreme requiring immediate operative procedure, as in a case reported later in the course of the paper, and is also present in the class of cases where the traumatic influences are indirect, as in excessive vocal strain. The non-appearance of dyspnea when the uvula is subjected to direct

and severe traumatism is readily explained by the laceration of the tissue as a result of the foreign body, allowing the fluids to escape and in this manner excessive infiltration by liquids is prevented. Cough is not as commonly present as the other symptoms mentioned and is rarely complained of when the parts are edematous, as in this condition the increase in the size of the uvula is one of bulk, that is, in the lateral direction, while the cough factor depends upon the elongation of the tissues and the contact of its tip with the epiglottis. When cough is present, however, it is of an irritating, tickling variety and promptly disappears on the application of an astringent, so as to draw the elongated uvula away from the larynx or base of the tongue.

Acute uvulitis characterized by the presence of a considerable amount of local edema, may result from the inadvertent swallowing of boiling water, acids, ammonia or any chemical irritant; the uvula participating in the general inflammation of the oro-pharynx. Cases in which the traumatic effects of irritant chemicals are alone limited to the uvula, are much more frequently observed and occur as the result of ineffectual or unskillful attempts to cauterize the adjoining tissues for therapeutic purposes. Under these circumstances but a limited portion of the organ is involved, although the resultant edema and inflammatory reaction is far in excess of the amount of damage inflicted. J. Solis Cohen² reports a case where caustic applications produced an intense edematous condition of the uvula, and numerous other cases similar in character have been recorded in the literature. The loose structure of the upper two-thirds of the uvula, like that of certain portions of the larynx, renders it susceptible in a marked degree to the action of caustic and it is surprising in what a short period of time after a minute amount of caustic material has been inadvertently applied, the edema develops.

Injuries, the result of carelessness or accident during operations on the pharynx or larynx, are of more or less frequent occurrence, especially when the electro-cautery or tonsil snare is used without proper precautions as regards the protection of the surrounding tissues. The resultant burn differs but little from that due to the action of chem-

ical caustics when the traumatism is the result of the careless application of the electro-cautery, while minor wounds due to catching the uvula in the joints of instruments are usually of little moment, except as they, to a moderate degree, augment the inflammatory reaction and for a short time cause the patient added discomfort. Objectively, when the uvula is injured by being caught in instruments during operations in this locality, we find a small laceration or bruise of the mucous membrane the most common feature, while traumatic ulcers the result of caustics are apt to develop in a few days after the injury has been inflicted, but readily heal under appropriate treatment. The liability to local and circumscribed sepsis after the infliction of this class of injuries upon the uvula, seems to occur more frequently than as the result of other forms of traumatism, as the injury when due to instruments is usually of a contused and lacerated variety and the resultant ulcer develops as the result of septic infection through the buccal cavity. Especially is this noticeable should the patient have decayed teeth and the parts are not thoroughly cleansed, as is frequently the case, before any operative procedures are instituted.

The first four varieties of traumatism to which the uvula may be subjected are all the result of direct violence to this portion of the oro-pharynx, while the fifth form results indirectly from excessive strain of the parts and the symptoms are out of all proportion to the apparent amount of injury inflicted, the ill regulated column of respiration and the irregular muscular action combining to produce this variety of indirect traumatism. The following case illustrates in a forcible manner this form of traumatism and is reported by Le Jeune³. He was hastily summoned to see a female singer, who was supposedly choking to death. The intense dyspnea came on after she had been singing for a time and immediately followed extreme and prolonged efforts to reach a note beyond her compass. The subjective symptoms were dyspnea, with the sensation of a foreign body in the throat. The uvula alone was affected and was of a dark purple hue and the size of an olive. Incision was immediately made, which gave exit to blood, which had extravasated

into the tissues of the uvula and immediate relief was given the patient.

In a similar manner small sub-mucous ecchymoses are produced by excessive and violent efforts to clear the throat as in the act of hawking. The effects of this form of traumatism upon the voice, both singing and speaking, is marked: the range is lost, as is also the clearness and strength, and often it becomes tremulous until the uvula regains its normal tone.

No special forms of treatment are indicated when the uvula suffers as the result of traumatism, but when the tissues are lacerated the local application of ice is most gratifying in conjunction with antiseptic and mild astringent applications. In inflammations, the result of inadvertent applications of caustics or instruments in operative procedures, bland soothing applications are valuable, such as ichthyoil in weak solution. When edema is extensive, or the parts much enlarged from hemorrhage into the tissues and dyspnea becomes imminent, multiple incisions promptly relieve all threatening symptoms and the uvula rapidly regains its normal size.

¹Fisher—Deutsche Medicinische Wochenshrift, Leipzig, No. 42, 1894.

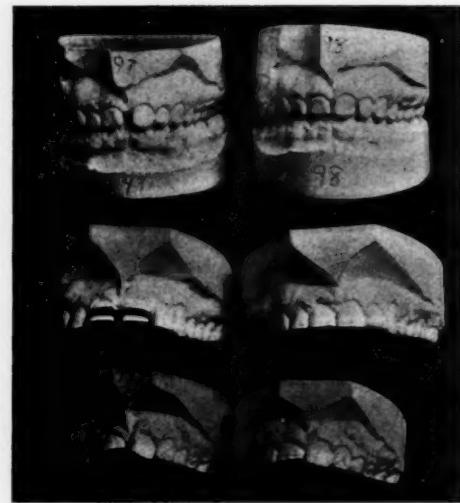
²J. Solis Cohen—Diseases of the Throat.

³LeJeune—Provincial Medical Journal, Leicester, England, February 1, 1894.

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a and b. Case II before and after treatment.
e and d. Case III before and after treatment; e with retention bands.
e and f. Case IV before and after treatment.

XV.

A MEANS OF REDUCING AN OVERGROWTH OF THE INTER-MAXILLARY FRENUM, PERMITTING THE RETENTION OF TWO CENTRAL IN- CISORS IN CLOSE APPPOSITION.

BY HANAU W. LOEB, M. D.

ST. LOUIS.

PROFESSOR OF DISEASES OF THE NOSE AND THROAT IN THE MARION-SIMS-BEAUMONT COLLEGE OF MEDICINE, LARYNGOLOGIST TO THE CITY HOSPITAL, REBEKAH HOSPITAL, EAST ST. LOUIS PROTESTANT HOSPITAL, GRAND AVENUE DISPENSARY, ETC.

The relatively new dental specialty, orthodontia, brings the laryngologist and the dentist into closer relation, for while the correction of maloclusion depends largely upon the mechanical treatment of the teeth, among the most common causes are the conditions which belong to the realm of laryngology. Not only this, but maloclusions may be prevented, and are being prevented, by proper attention to the obstructive conditions of the nose and throat, so common in childhood.

For instance in the mouth-breathing child, the two posterior ends of the upper alveolar arch have a tendency to approximate and thereby encourage the development of the V-shaped palate arch, and, at the same time, the teeth lose their proper relation to one another, to their fellows upon the lower alveolar arch, and to the alveolus itself, wherefore the various deformities result.

While investigating and studying the effects of mouth-breathing upon maloclusion of the teeth, with Dr. C. D. Lukens of St. Louis, my attention was called to a very common condition in which the two central incisors are permanently separated. It is a comparatively easy matter to bring these two teeth together and hold them in close apposition by properly fitting retaining bands, but they generally separate with startling rapidity when the retention apparatus is removed. Investigation showed us

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that there is a small ridge of tissue which passes from the labial frenum downward between the teeth, extending to the palatal surface. In studying this unusual distribution of the fibres apparently from the frenum, we have found that in the main this depends upon the implantation of the frenum upon the gingival surface. When the attachment is high up, the fibres are lost before they reach the under surface of the alveolus, while when it is lower down, the fibres in a vast majority of cases continue between the two central incisors and are spread out in a fan-shaped manner upon the palate. The points are beautifully seen in the photographs which are here presented.

These observations have been made upon the living subject, hence we do not maintain that dissection will entirely confirm them, though the appearance of the living subject suggests their verification. Just what degree of low attachment conduces to the extension of the fibres to the palate, we are at present unable to state with absolute exactness, but in our cases, except one, whenever the frenum was attached to the gingival surface, less than three millimeters from the lower edge of the alveolus, the separation of the two teeth was observed. In the single exception noted, the attachment almost reached the inferior border of the alveolus and yet no appreciable separation of the two central incisors was present.

It is, of course, possible that in the embryologic development of the intermaxillary bone, the low attachment of the frenum is the effect and not the cause of the separation. As we have had no facilities for determining and investigating this feature of the question, we leave it at present entirely open.

Suffice it to say that separation of the two central incisors is very common; it causes no bad symptoms, except from the standpoint of esthetics. Young women object to it because of its unsightliness.

Whatever the cause of the separation of the two central incisors, an examination reveals the presence of the mass of tissue which lies between the two teeth, and the continuance of the separation depends upon its persistence.

To overcome this, I have taken advantage of the well-known cicatrizing effect of the galvano-cautery, whereby the tissue is tremendously reduced in size and by means

of which, in all the cases so far treated, permanent approximation has resulted.

The operation consists in plunging a galvano-cautery knife in the median line, beginning at the upper and anterior margin of the mass of tissue just described, and carrying it well under and behind the alveolus, even to the fan-shaped prolongation on the palate. One application will sometimes be sufficient, though three or four may often be necessary. The operation may be performed before the retention bands have been applied or during their application and use.

Care must be taken not to insert the cautery point too close to the teeth.

The reaction from the operation is very slight—in fact less than from cauterization of the nose.

A few illustrative cases may bring out the special points in the treatment of these cases.

Case 1. M. M., young woman, aet. 18. Separation fully one millimeter, frenum attached about three millimeters from lower alveolar border. On Dec. 22, 1898, I cauterized the mass, carrying the cautery point under the alveolus and upward toward the palate. No reaction or pain followed this treatment; retaining bands were applied and the teeth were soon brought in close approximation, which continued, according to my last report from the case.

Case 2. N. W., girl aet. 17, referred to me by Dr. Lukens. Separation three millimeters, implantation of frenum labii superioris two and a half millimeters from the alveolar edge; beautiful fan-shaped prolongation of fibres upon the hard palate fully twenty millimeters in width. Repeated efforts to hold the central incisors in apposition had utterly failed, the teeth springing back rapidly after removal of the retention apparatus. Between March 15th, and May 3rd, 1899, three cauterizations were made, the first before and the others after the retention apparatus was applied. No reaction followed except slight pain in one instance. The case progressed to complete correction of the deformity, as shown by the photograph herewith presented.

Case 3. This patient, a woman, aet. 28, as shown in

246 REDUCING OVERGROWTH OF INTER-MAXILLARY FRENUM.

the model had exhibited since childhood marked protrusion of the upper teeth over the lower teeth, associated with, and in all probability incident to mouth breathing. While no adenoid growths were observable upon examination, the appearance of the patient's face and the history were strong presumptive evidence. Two cauterizations were made on January 24th and January 28th without any reaction. Case progressed without incident and approximation of teeth is now perfect, although the central incisors were separated fully two and one-half millimeters.

Case 4. W. F., boy, 9; separation one and a half millimeters; implantation of frenum almost at the lower edge of alveolus. Two cauterizations, March 22nd and April 9th, 1900, were sufficient to permit the teeth to be held together after use of the retention apparatus for six weeks.

My object in bringing this work to the attention of this society is to add one more link to the chain of association of mouth to pharynx and nose, and, perhaps to suggest a further plan whereby we may properly be of assistance to dentists, especially those who practice orthodontia.

XVI.

INFLAMMATION OF THE MASTOID PROCESS.*

BY B. F. CHURCH, M. D.

LOS ANGELES.

SURGEON-IN-CHARGE OF THE LOS ANGELES EYE AND EAR HOSPITAL.

While it is usual to speak of diseases of the mastoid process separately from those of the tympanic cavity, it is probable that the mastoid antrum and cells participate, to a greater or lesser degree, in all inflammatory conditions of the middle ear. Primary inflammation of the mastoid is exceedingly rare when traumatism or the manifestations of tubercular or specific diatheses are eliminated. Localized or diffused inflammation in the external auditory canal may extend to the mastoid cells, yet, generally speaking, all diseased conditions of the mastoid process have their origin in the middle ear and from that point pass to the mastoid antrum and cells.

A brief review of the anatomy of the temporal bone, and relations to important adjacent structures, is given in order to better elucidate some points desired to bring out. During the first years of life union between various parts of the temporal bone are vascular and not firmly united, which permits inflammatory products to pass through, giving rise to a collection of pus under the periosteum behind the auricle. This tumefaction containing pus, and having no connection with the mastoid cells, is frequently seen in strumous children.

The greater part of the outer wall of the tympanic cavity is formed by the drum head. The upper portion of the tympanum or middle ear is the attic, and connecting directly with it by means of the aditus-ad-antrum is the mastoid antrum, which in turn communicates with the mastoid cells. The roof of the middle ear, called the tegmen tympani, consists of a very thin plate of bone upon

*Read before the Academy of Medicine at Los Angeles, January 25th, 1901.

which rests the dura mater of the brain, being a part of the floor of the middle cerebral fossa. Defects in the bone of the tegmen tympani are not of unusual occurrence, permitting inflammatory products in the middle ear to pass directly to the brain.

The floor of the tympanum is of thin bone, beneath and posteriorly lies the jugular fossa, and anteriorly the carotid artery. The facial canal is situated directly behind the attic and antrum. The nerve is in great danger of being injured when curetting the attic, especially so in children, as the wall of the canal is very thin and may be lacking.

Anomalies in the course of the lateral sinus, making it almost impossible to reach the antrum through the mastoid without opening the vein, are not rare. Great variations are found in the density of the bone forming the mastoid process. There may be large air cells lined with mucous membrane freely communicating with the antrum and each other throughout the entire region; the upper part may be composed of air cells, while the lower part of the process may be diploetic tissue; the entire bone diploetic or completely sclerosed and eburnated. The latter condition is probably not natural, the osteosclerosis being a result of long standing inflammatory changes existing in that region. This condition, to a great degree, masks symptoms of disease that may exist in the antrum or adjacent parts and adds danger by forming an impassable barrier to the exit of pent-up inflammatory products through the bone externally, the thin partitions from the brain or sinuses being in that event places of least resistance. Symptoms usually looked for by the older surgeons, of swelling and tenderness over the mastoid, would not appear under these conditions. The external contour of the temporal bone affords us no reliable information regarding its internal formation, whether pneumatic or sclerosed, the existence of an anomalous position of the lateral sinus, or pathologic changes present, such as osteitis, empyema or osteo-myelitis.

The following case, operated upon last summer, is a striking example to the extent to which osteosclerosis may take place after long continued inflammation in the middle ear and antrum, and also the extent to which the con-

dition may mask symptoms that justify performing the mastoid operation:

Miss H., age thirty, gave a history of hip joint disease when a child. Bone resected later, resulting in recovery. At ten or twelve years of age had a discharge from left ear, which continued with little or no abatement up to the time of operation in August last. When I first examined the ear three or four months before that time, there was a small opening in Shrapnell's membrane through which exuded a very small quantity of pus. All of my endeavors by simple methods to check the discharge proved futile. The patient felt a constant uneasy sensation in the ear and over the upper mastoid region, but seldom a decided pain. While on a summer vacation in the mountains, she was attacked with a severe pain in the ear. As she had been warned of the danger which might accrue from the chronic ear trouble, she immediately returned to the city to have the radical operation performed. Upon arriving here several days later, she complained of no decided pain in the ear, but a numb uncomfortable feeling. The usual small amount of pus could be wiped away from around the slight opening in the upper part of the drum membrane, but there was no decided bulging of the parts. There was no swelling or redness behind the auricle, nor could pain be elicited by firm pressure over any part of the bone externally. In the absence of more positive indications for opening the mastoid, I should not have done so but from previous history of the case, inability to control the discharge by simpler methods and the wishes of the patient to undergo the operation in hopes of relief from the long existing menace to her life.

Before opening the bone a free incision was made through Shrapnell's membrane, the point of the knife reaching the attic, then incising the tissues to the bone from that part of the tympanic ring externally for one-half an inch. Upon chiseling through the cortex over the antrum, dense eburnated bone was encountered which extended the entire distance to the antrum, which was about ten-sixteenths of an inch from the surface. No vestige of cellular bone or diploetic tissue was present in any part of the opening, but it was so ivory-like as to break or turn the edge of several instruments used in

sinking the canal to the antrum. The antrum was found to be very small and I am not positive that it contained pus, though some inspissated pus and epithelial cells were dislodged from the tympanic cavity by curetting and the free use of a middle ear syringe, the bent tip being introduced through the wound and antrum, the solution passing out through the meatus. The antrum was packed with iodoform gauze and removed in forty-eight hours afterward, then dressed daily without packing the wound in the bone. Recovery was uninterrupted, and she left hospital in two weeks from the time of operation; the wound by that time being healed except a slight granulating surface between the edges of the skin wound, which closed up in a few days. The patient returned, in less than a month from the time of operation, to her home in an adjoining town and resumed her duties as teacher in a public school. There has been no return of the discharge from ear up to the present time and the patient expressed a sense of relief from the annoying sensations about the ear so long suffered from, immediately upon recovering from the anesthesia.

Belonging to the class of chronic mastoiditis as described above, Knapp calls especial attention to not rare conditions in which the patients suffer excruciating pains of a neuralgic character, which radiate from behind the ear over the adjacent side of the head, incapacitating them for prolonged mental labor. The otorrhea may have ceased for months or years. There may be no redness or tenderness upon pressure over the mastoid, nor can a diseased focus be localized by any means at our command, and upon opening the antrum no pus is found, yet, strange to say, the pain is relieved by the operation.

To illustrate: A few years ago the writer did a Schwartz operation upon a woman for acute mastoiditis (left side), who had suffered for several years from double otorrhea. About the time of her recovery from the operation upon her left ear, a few weeks later, the patient complained of severe pain in a circumscribed spot about two inches below the sagittal and one inch in front of the lambdoid suture on the right side of her head, worse at times than at others, frequently excruciating and visibly affecting her health. There was no pain in the ear or symptoms of any

kind to denote an active inflammatory condition of the tympanum or antrum. The bone over the antrum was perforated and found to be sclerosed, there was no pus in the antrum, yet the pain ceased almost immediately after the operation and with it also the otorrhea.

The prognosis in acute tympano-mastoiditis depends upon the presence or absence of infection. Upon this point the writer desires to place particular stress. We may confidently expect a rapid subsidence of all simple acute inflammatory conditions of the mastoid, co-ordinately with that of the middle ear, provided no infection has been carried from without. In exanthematous diseases of children, infection is very prone to occur, micro-organisms passing through the Eustachian tube from the naso-pharynx.

It is very probable that the streptococci usually found in the ear discharge of these patients are the primary cause of the otitis media, they having entered through the Eustachian tube before its closure. This stoppage of the tube, which takes place in all high inflammatory conditions of the tympanum, being nature's method of preventing infection of that cavity, is usually successful if not baffled by the over zealous use of the Politzer bag or other forcible means which carry infection from the naso-pharynx.

Empyemic involvement of the mastoid characterized by rapid destruction of the bone, is likely to follow acute inflammation of the middle ear when it occurs as a sequela of the exanthematous diseases in children.

A case in point: A child six years of age; patient of Dr. Yost; mastoid involved during a severe attack of scarlatina. Through the courtesy and assistance of the doctor, the soft parts were freely incised from above the ear to the tip of the mastoid process. The entire bone was found to be a necrosed and crumbling mass extending from the antrum to near the tip, and from the posterior meatal wall to the lateral sinus behind. The surprise in this case was not only the rapid and extensive bone destruction, but that there was no intracranial or sinus extension of the disease.

Mastoiditis following chronic suppuration in the middle ear is of the infected variety and the prognosis is always

grave. On account of the anatomic arrangement of the parts, disease, when localized in the attic or upper part of the tympanum, more readily extends to the mastoid than when situated lower down in the middle ear. A fold of mucous membrane extends across the cavity from the short process of the malleus and almost completely divides the attic from the lower part of the tympanum. Reduplications of this membrane, or great swelling of the parts, may completely separate the two portions of the cavity, and, as the attic extends somewhat over the superior wall of the meatus, a very small space is left for the external discharge of inflammatory products which must pass either under the posterior-superior lip of the bony canal or through Shrapnell's membrane. Sagging down or bulging of the structures in this locality is of the greatest diagnostic value in mastoiditis, and one upon which our greatest reliance should be placed in the absence of positive external indications. The next important symptom is local tenderness upon firm pressure over the mastoid region. This sign is usually the most prominent, but may be absent even when serious destructive lesions exist within the bone.

Elevation of the temperature of the body usually accompanies the acute affection; not so, however, when the mastoid has become involved secondarily to chronic middle-ear suppuration. A circumscribed inflammation of the canal sometimes causes an edema behind the ear which may be mistaken for mastoid involvement; and, for reasons given, a tumefaction is often found back of the auricle in children when there is no opening in the cortex of the mastoid.

Treatment: When seen early, antiphlogistic measures such as confinement to bed, a brisk cathartic, local blood letting, and cold applied over the mastoid should be employed. If the upper posterior wall of the canal and Shrapnell's membrane are bulging, a deep incision should be made through the membrane and extended along the superior wall of the canal for at least one-quarter of an inch. This simple operation if resorted to at the proper time, will, in a majority of cases, cut short the attack and obviate the necessity for performing a more serious operation, that of opening the mastoid.

Opiates for the relief of excessive pain may be employed early in the disease, but caution in their use is necessary that they may not so mask the symptoms as to frequent proper recognition of their import. This caution is also necessary in the use of cold, which should not be applied longer than twenty-four or thirty-six hours—forty-eight hours at the furthestmost.

The Leiter coil applied continuously over the mastoid will, as a rule, control the pain of acute mastoiditis, and, as mentioned by Dr. Dench,* is a valuable diagnostic agent to differentiate neuralgic pains over the side of the head from those emanating from deep inflammatory processes. The former is made worse by the cold while the latter is relieved. Frequently after rest in bed, the use of cold applications, etc., the pain is relieved and with it apparently all other untoward symptoms, yet, when the patient resumes his daily vocation they all return with renewed vigor. If there is not an immediate improvement upon incising the upper posterior wall of the canal, or a decided change for the better after forty-eight hours use of the simpler methods, the radical operation should be immediately performed.

The mastoid antrum should always be the objective point when operating for mastoiditis. If that cavity contains pus all of the mastoid cells should be freely opened. If a sclerosed mastoid, the antrum and tympanum should be thoroughly cleaned—irrigating fluid being introduced always from the wound side and made to flow out through the meatus. In pyemic conditions of this kind it is probably best to chisel away the posterior wall of the meatus converting that cavity, the tympanum and antrum into one.

While there is no inviolate law to guide us regarding radical procedures, experience teaches that the sin of omission is often committed in these cases. Hundreds of lives have been lost by reason of delay or failure to perform the operation, while none are charged directly to it.

*Diseases of the Ear, by Dench.

XVII.

VARIETIES OF CHOLESTEATOMATA.

BY DR. J. HOLINGER.

CHICAGO.

By pathologists and otologists the following question has been argued: Is it justifiable to use the same name—cholesteatoma—for two tumors which are identical in their macroscopic and microscopic appearance, but different as to their etiology?

Joh. Mueller, and later, Virchow, described as pearl-tumor, or cholesteatoma, a rare tumor with the following characteristics. The size ranges up to that of a walnut, usually not over the size of a bean. It is well limited. The wall has the lustre of a pearl and consists of epidermis-like tissue or hornified cells. The contents have no blood-vessels or nerves, but consist of scales of hornified or epidermized cells, which are arranged in layers like the shells of an onion. Between the shells are numerous crystals of cholesterol. The tumor occurs in various parts of the body, mainly at the base of the brain and in the testicle. It usually causes no symptoms, but is an accidental finding at post-mortems. Most probably it originates from cast-off particles of epidermis, and is therefore congenital and extremely rare. In his original publication of 1855, Virchow describes several cases which we know now were not congenital, but acquired.

Habermann, from clinical and pathologic observations, described a tumor in the temporal bone, with identical appearance. Many layers of epidermized scales, in onion, shell-like arrangement were surrounded by a capsule of pearly, shining wall in the cupola of the tympanic cavity and the mastoid antrum, often filling the whole process. It was connected through large holes in the drum head, or even in the bone, with the external meatus. Its wall continued without interruption to the lining of the tumor.

Cholesterin crystals were present. This tumor was, however, not congenital, but was brought on in connection with chronic inflammatory conditions of the middle ear, and was acquired.

The careful study of the anatomy and pathology of the temporal bone by otologists as well as the clinical observation left no doubt that cholesteatoma of the temporal bone is not a rare but frequent finding, and is by no means an insignificant and good-natured growth like the congenital tumor of the brain and testicle, but causes quite often the death of its bearer by bringing the most infected material into contact with the lateral sinus, the dura and the pia, thus causing thrombophlebitis of the sinus, meningitis, or abscess of the brain. In order to understand this, we must remember two things: First, the epidermis, especially in children, has great power of regeneration and shows this in all parts of the body where epidermis and mucous membrane meet. As soon as the mucous membrane is diseased, inflamed or otherwise impaired, the epidermis grows over and covers the spot. In this way insulas or parts of normal epithelium are often overlapped and put out of existence. We find this at the nose, at the anus, etc. The process is especially energetic in the middle ear, as soon as epidermization has once begun. The aditus ad antrum, the antrum and the cells become inundated with epidermis. Afterward this epidermis is under very unfavorable sanitary conditions. If in washing or bathing any water gets into such a cavity through an opening of the drum, the water cannot evaporate, but will keep up a certain amount of irritation, the epidermis forms more scales and one cast after another of the wall is thrown off until the cavity is filled. But the process does not stop then, and here comes the second point: The cavity is enlarged by pressure, and some authors think that it even has a tendency to active enlargement. The bony septa between the mastoid cells are destroyed, or absorbed; the bone can not resist in any direction. The luckiest occurrence is a perforation in the external canal, or to the outside, and evacuation of the contents. Cases of that kind have been repeatedly observed, where an extremely slow growing growth appeared behind the ear or in the neighborhood of the mastoid pro-

cess on the neck. The diagnosis was difficult until the tumor bursted and a big lump of dry scales was thrown out. This is, however, the exception; the rule being perforation toward the brain and death. The beginning of the whole usually dates back to the earliest childhood, and is often brought into connection with one of those dreaded scarlatinal otitides. The organism adapts itself to the pressure, and the slow growth may progress unnoticed for 20 to 50 years; even parts of the labyrinth may be destroyed before a meningitis or sinus thrombosis claims its victim at short notice, after he has carried around in his head a perfect incubator loaded with germs, for a lifetime.

So far I have evaded the question how the epidermis entered into the middle ear. The study of this part of the subject is hardly less interesting than that of any of the rest. The simplest, and beyond all doubt the most frequently used avenue is the one I have already hinted at; through a perforation of the posterior upper quadrant of the drumhead bordering on the annulus tympanicus, with necrosis of a part of the adjoining bone. From there the way to the aditus ad antrum is measured by millimeters or fractions of millimeters only.

The second was under discussion for a long time, until Politzer settled it by showing a microscopic cut through a perforation of the drum, where the epidermis of the outer surface continued without interruption over the edge of the perforation to the inner surface where it replaced the normal epithelium of the drum membrane.

Another road was described by Bezold as cholesteatoma of the drum-head, or cholesteatoma of Shrapnell's membrane. In cases where the whole or parts of the drum-head, especially its most movable part, which is Shrapnell's membrane, are retracted for years, as happens often in children with adenoids or in cases of old adhesions of the drum to the promontory, sacklike excavations or diverticula will form. Now here two possibilities are given: The wall may become atrophic and the diverticulum rupture inward, its walls becoming adherent to the inner side of the drum and its surroundings in the middle ear, thus getting the epidermis to overlap the epithelium of the tympanic cavity. If the growth is once started it has no limit. The second possibility is, that in this diverticulum the scales may accu-

mulate and form a little cholesteatoma in Shrapnell's membrane. Cases of this kind have been described by Bezold. The tumors were only a few millimeters in diameter, but it is easily seen that nothing is in the way of a larger growth filling out the attic or the antrum.

In the last two cases an inflammation or suppuration of the middle ear need not have preceeded, and yet we might have epidermis in the middle ear and cholesteatoma. This kind, some authors claimed, was congenital, until Bezold demonstrated specimens and pictures to prove its nature. The investigations upon cholesteatomata are far from being closed. In one of the last numbers of the "Archiv fuer Ohrenheilkunde," Habermann published several cases of cholesteatoma of the external meatus, where the external meatus contained cholesteatomatous masses the size of a pigeon's egg in an excavation of the meatus to the rear into the cells of the mastoid. Microscopic examination of the wall of the diverticulum showed that the bone was not passive, but took an active part in the process, inasmuch as it was changed from compact bone into spongy bone. Last January, I showed in the German Medical Society, of Chicago, a patient with such an enlargement of the bony meatus, which was lined with a typical pearl-like, shining, cholesteatoma membrane, and from whom I removed masses the size of a hazelnut.

Much farther progressed was this same condition in a deaf and dumb boy of 12, whom I saw in my examinations of the pupils of the Institution for the Education of the Deaf and Dumb in Jacksonville. The entrance to the meatus was normal; one-half cm. from the concha the meatus was enlarged into a cavity the size of a walnut lined with the well known pearl-like membrane. The cholesteatoma comprised the external meatus, the mastoid cells, the antrum, the middle ear, and undoubtedly a part of the labyrinth. No trace of the drum-head or ossicles could be found. The wall was smooth and pearly, shining all over. That this process was inflammatory was shown by a sequestrum which was found in the center of the mass.

Finally, I may say a word as to cholesterol. It was considered by Joh. Mueller as an essential part of the tumor. We now know that it is merely accidental, and owes its existence to the decomposition of organic matter in an atmosphere where oxygen is lacking. Nevertheless the name of the tumor is taken from its presence. To differentiate the two, we call the rare one congenital cholesteatoma, the other simply cholesteatoma.

I will state that by far the greatest number of so-called incurable, chronic suppurations of the middle-ear are due to epidermization of its lining and cholesteatoma.

XVIII.

ACUTE LACUNAR INFLAMMATION OF THE TONSILS.*

BY MARSHALL R. WARD, M. D.

PITTSBURG, PA.

FELLOW OF THE AMERICAN LARYNGOLOGICAL SOCIETY; PROFESSOR OF LARYNGOLOGY AND RHINOLOGY OF WESTERN PENNSYLVANIA MEDICAL COLLEGE; LARYNGOLOGIST AND RHINOLIST TO THE EYE, EAR, NOSE AND THROAT HOSPITAL, THE MERCY HOSPITAL, ETC.

The essential morbid lesion in acute lacunar tonsillitis is a catarrhal inflammation affecting chiefly the lacunae or crypts of the tonsils. The process may be limited to a few crypts in one or both tonsils, or the entire lymphatic tissue in the pharynx may be involved. It occurs rarely as a primary disease, and is usually associated with a general catarrhal inflammation of the tonsils and naso-pharyngeal structures, which doubtless acts as the chief predisposing cause of the tonsillitis.

Its infectious nature is no longer in doubt, and the intensity of the disease varies according to the form of infection, its location, and the natural resistance of the patient. This will account for the comparatively mild systemic disturbance in some cases, and the profound toxemia in others. So far, no one has yet been able to isolate the specific micro-organism upon which it depends. Viellon¹ believed it to be due to the streptococcus pyogenes, which he found present in all of the twenty-four cases which he examined.

Meyer,² in the analysis of 53 cases, found staphylococci in 14, streptococci in 15, and a mixture of staphylococci and streptococci in the remaining 24 cases. He found

*Presented to the American Laryngological, Rhinological and Otological Society at its annual meeting in New York, May 23 to 25, 1901.

also a diplococcus closely resembling that of pneumonia. Tubercle bacilli and Klebs-Loeffler bacilli have been found occasionally in the bacteriologic examinations of acute lacunar inflammation of the tonsils. Their presence is believed to be merely an accidental occurrence. It must be remembered that a great variety of pathogenic bacteria have been found to exist in the throats of perfectly healthy individuals. This, doubtless, can be explained by the normal tissue resistance, or what is commonly known as phagocytosis. The natural inference, therefore, would be that these organisms are of secondary importance as etiologic factors in diseases, the chief predisposing cause being some inflammatory process, which first weakens the physiologic resistance of the mucous membrane.

This may be sudden exposure to cold, lesions of adjacent structures or a lowered general vitality of the individual due to some constitutional dyscrasia or toxic material circulating in the blood.

Intra-nasal and pharyngeal operations are frequently associated with acute lacunar tonsillitis. Their etiologic relation is of considerable interest and importance to every nose and throat specialist. No matter how carefully these operations may be performed, or what precautionary measures may be taken in the after treatment, a certain proportion of the cases will be followed by acute lacunar inflammation. Granting that ordinary antiseptic precautions have been taken, this may be explained by:

I. The open wound acting as an accessible point of entrance for the bacterial infection, the poison being conveyed to the tonsils through the neighboring lymphatics.

II. Certain pathologic changes in the naso-pharyngeal structures due to the irritating effects of plugs or dressings within the nose.

III. The local and constitutional effects of the cocaine, which weakens the natural resistance of the patient.

Chronic enlargement of the tonsils naturally invites recurring attacks of inflammation. This is especially true if the tonsils are undergoing what is commonly described as follicular degeneration. The retained secretion decomposes, distends the lacunae, weakens the lining membrane by interfering with its blood supply, thereby furnishing

the chief requisite condition for bacterial infection. Ulceration and necrosis may occur at any point within the lacunae, and give rise to a parenchymatous tonsillitis.

Much has been said and written on the tonsils as portals of entrance for pathogenic bacteria. There can be little doubt that many of the acute infectious diseases owe their origin to micro-organisms, introduced into the system through the tonsillar crypts. They are favorite breeding places, veritable incubators for all kinds of bacteria, particularly the staphylococci and streptococci. The protective epithelium within the crypt once denuded, nothing is to prevent these organisms from entering the lymphatic and circulatory system. This will account for the frequent association of acute lacunar tonsillitis and rheumatism, endocarditis, myocarditis, nephritis, and many other infectious diseases. It is a mistaken idea to suppose that they have any other relation than a common bacterial one. The first effect of the micro-organisms is manifested on the tonsils, and to their systemic absorption through the tonsillar crypts, the rheumatic and other infectious processes so frequently associated owe their origin.

Wagner,³ of San Francisco, has been able to demonstrate in the urine and synovial fluids of patients affected with rheumatism and tonsillitis, the same identical micro-organisms. The theory of the microbial origin of rheumatic fever is to-day pretty generally conceded, as may be seen by MacLagan's⁴ article on "Rheumatism" in the Twentieth Century Practice of Medicine; also, the recently published report of a discussion⁵ on rheumatic fever at the annual meeting of the British Medical Association.

Acute lacunar tonsillitis occurs most frequently between early life and adolescence. This is explained by the abnormal development of the lymphatic tissues during this period of life. While the faucial tonsils are most likely to be affected, the disease is by no means confined to these structures. Any portion of the so-called tonsillar ring may show numerous white pultaceous masses, marking the lacunae or crypts concerned in the process. This is especially true of the lymphatic or adenoid tissue in the vault of the pharynx, often the only part affected, and escaping our notice, unless a post-rhinoscopic examination be made. Ordinarily the diagnosis can be made by

direct inspection, but not always so. While the anatomic appearances are quite characteristic, a bacteriologic examination should always be made to ascertain, if possible, the presence of a mixed infection, which not infrequently occurs.

Is acute lacunar inflammation of the tonsils contagious? To a moderate degree, yes. Abundant clinical evidence can be produced in support of this theory. We not infrequently find it epidemic, running through whole families, besides affording abundant proof in other instances of direct communication from person to person from a single exposure. Being distinctly a microbial disease, all that is required to make it contagious is exposure, and the necessary receptive condition of the patient.

It is needless, here, to do more than simply mention the cervical-lymphatic and ear complications of this affection. The extent of destruction done to these structures will depend largely upon the specific organism concerned in the process—the streptococcus naturally being the more destructive in its results, and most likely to be followed by suppuration.

The treatment of acute lacunar inflammation of the tonsils is both local and constitutional. Much confidence is expressed by some physicians in their ability to abort this affection. Personally, I cannot lay claim to any such superior skill. I wish I could. The remedy which is supposed to possess such magic power is the local application of guaiacol. It has some antipyretic and antiseptic properties, and is also a local anesthetic to a slight degree. This is all, I think, that can be justly claimed for it. I cannot recall a single instance wherein I have been able to successfully abort an attack of acute lacunar tonsillitis. As well might we claim to abort typhoid fever, diphtheria, or any other of the infectious diseases. All we can hope to do, by local treatment, is to modify the severity of the disease, as it is self limited, lasting at most but a few days. If the lacunae or crypts are distended with confined secretion, they should be evacuated by a blunt probe-curet, care being taken not to denude the epithelium more than is possible.

The indiscriminate local treatment of the crypts, digging and probing in the vain hope of dislodging or de-

stroying the poison supposed to be lurking therein, is, I dare say, productive of more harm than good. As a routine treatment, I have been in the habit of using the following combination:

R	Acid carbolic.....	gtx
	Acid boracie.....	aa 5iss
	Soda baborate.....	aa 5iss
	Hydrogen dioxyd.....	
	Borolyptol	aa 5i
	Aquae dest.....	q.s. ad f ³ viii

M. Sig. Use as a spray or gargle every two hours.

Small particles of cracked ice, or ice-water in the form of a spray or gargle, is of decided benefit in the early stage of the disease. If there be indications of any extensive lymphatic involvement, the ice-coil may be used.

The constitutional treatment consists in free purgation with calomel or effervescing phosphate of soda. For the fever, headache and muscular pain, I usually combine codein sulphate, salol and phenacetin, in proportions to suit the age and requirements of the case. If there is a previous history of rheumatism, I rely on the salicylate of strontium or soda in preference to the salol.

The tincture of chlorid of iron is a time honored remedy, the value of which cannot be over-estimated in this affection. It has a decidedly beneficial local effect, besides a selective action on the blood and kidneys. It should be given during the acute stage of the disease and continued far into the convalescence.

As one attack of acute lacunar tonsillitis predisposes the patient to recurrent attacks, it goes without saying that these offending and apparently useless organs, the tonsils, should be removed without delay during the quiescent stage. Under no circumstances should any operative procedure be employed during the active period of the disease.

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Park Bldg., May 18, 1901.

XIX.

NON-SYPHILITIC MUCOUS PATCHES OF THE THROAT.

BY O. JOACHIM, M. D.

NEW ORLEANS, LA.

The term "mucous patch," the plaques muqueuses or the plaques opalines of the French, is so closely associated with the manifestation of constitutional syphilis in the throat that I did not adopt the title of Non-Syphilitic Mucous Patches of the Throat without some hesitation. The particular throat eruption to be considered seems to present its greatest interest and importance in its lack of visible distinction from the specific variety. To emphasize the etiologic distinction appears best accomplished by calling it the "non-syphilitic mucous patch."

The diagnosis of the mucous patches, such as we know by the books is, as a rule, not difficult. Syphilitic mucous patches appear as grayish or pearly-white patches of thickened and loosened epithelium, with clearly defined hyperemic outlines of variable size, modified in their appearance by local effects and state of development. They occur in syphilis with relative frequency on the lips, corner of mouth, edge of tongue, soft palate, tonsils and in point of time, usually first on tonsil and soft palate. If due to syphilis, they have a chronic course and are accompanied by glandular enlargement; they often quickly disappear and show great tendency to relapse, even for years.

They are usually sufficiently characteristic not to be readily mistaken for other throat affections. Under certain conditions, aphthous stomatitis may simulate mucous patches. The differentiation rests upon the febrile, sudden onset in aphthous stomatitis, which mostly affects children, its painful inflammatory character, and the thick, yellowish exudate. Herpes buccalis, which seems to pre-

fer much the same places upon which mucous patches are observed, and which may be confounded with them, differs in its greater painfulness and the preservation of its characteristic lesion, of small blisters around the edge of the eruption, and the co-existence of external herpes. In the rare and serious lesion of pemphigus the differential diagnosis is the more important, as, under the assumption of existing syphilis, a favorable prognosis would be a severe error and anti-syphilitic treatment of positive harm. By close observation the remains of the elevated cuticle is still apparent and in some of the lesions partly preserved.

More frequently than the diseases mentioned, the condition known as leucoplakia gives rise to difficulty in differential diagnosis. In leucoplakia, which affects the tongue, cheeks and lips, not the tonsils and soft palate or under surface of tongue, the lesion is essentially white and remains in the same form and location indefinitely, in contradistinction to the shifting character of the mucous plaques. The surface is smooth, tough or warty, subject to fissures, not to ulcerative processes, nor soft, macerated nor like mucous patches, bleeding on the touch of the probe. Leucoplakia is aggravated, rather than benefited, by anti-syphilitic treatment. Superficial lesions, sometimes simulating mucous patches, may be due to chemical action on the mucosa. The appearance of the mucous membrane, when nitrate of silver has been applied, is always cited to convey the idea of the appearance of mucous patches. This can not be confounded with it, however, as its effects are of the most transient nature. It may not be amiss to call attention to the superficial lesion caused by the chlorate of potash tablet as dispensed by the druggist. Chlorate of potash has its uses, but in no such dosage and concentration as used in this form. The laryngologic literature every now and then recites cases of death from chlorate of potash poisoning, and the manner in which chlorate of potash tablets are taken by the public for every kind of sore throat and dispensed by the druggist, constitutes, to my mind, a decided abuse.

To these diseases which may, at times, simulate mucous patches I want to add two recent observations which, to my judgment, appear to prove the existence of a throat

eruption apparently so much like syphilitic mucous patches that their differentiation seemed impossible by the usual marks of distinction.

A young man, about 23, presented a throat condition to all appearances like the mucous patches of secondary syphilis on the soft palate and uvula, extending when first observed, to the left tonsil. It presented all the characteristics of mucous patches and suspicion of its specific nature was at once expressed. Proper and thorough investigation failed to disclose any initial lesion. The patient's statements of non-infection were corroborated by the physician who, for some years past, had the patient under observation. Local treatment did not seem to be of benefit, as new areas became involved, while the former patches healed. After two weeks the patches had all healed, but not before reaching to the right tonsil, which became covered with a mucous patch, while under observation and treatment. No internal medication was given. The secondary skin eruption was closely watched for, but never appeared.

The second case was that of a young colored woman. The mucous patch appeared only on the left tonsil. Primary infection being denied and careful examination failing to reveal any reason for disbelieving her statement we omitted internal medication, to see what local treatment alone would effect. The patient's throat condition healed also in about two weeks. The tonsil on the left side appears to have healed, leaving the superficial fibrous trabeculae apparently hyperplastic. In this case, no skin eruption ever appeared and no further trouble developed.

The existence of mucous patches has been largely the deciding factor in the diagnosis of syphilis, even if primary infection is denied, and no visible primary lesion or the evidence thereof in the shape of cicatrix is ascertainable. It is an acknowledged fact that in the female the existence of the primary sore is, at times, accompanied with such trifling complaints as to escape the attention of the infected women. The throat symptoms may precede the eruption as well as be concomitant with it; and the latter may be so ephemeral as to escape notice. Anamnesic data evidences may, therefore, not be always available to help us in the decision, nor is it always possible to inter-

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rogate our patients as the existence of a primary infection. The denial of the patient, in this respect, should be taken with great caution and then only when corroborated by the family physician and by a thorough and careful physical examination.

So strongly has the existence of mucous patches been associated exclusively with syphilis that Jullian described syphilis as: "Un chancre, une roseole fugitive et par suite de plaques muqueuses, de recidives de plaques muqueuses et toujours de plaques muqueuses."

But, though it occurs rarely, mucous patches, or what looks like mucous patches, do appear in a non-syphilitic subject. And, what happens when we assume syphilis to exist in such an individual, or one suffering from conditions in which the differential diagnosis has not been made? The length and effects of treatment, the knowledge of being afflicted with the disease, its influence on the patient's mind, on his plans, or his capacity for work, the probable harm to existing more or less innocent affections, and the severe mental effect from apparent inefficiency of treatment, as is in leucoplakia, and the not indifferent effects of the prolonged and energetic treatment instituted for the cure of syphilis, such as local and general hydrargyrosis and others need only to be mentioned to prove the desirability of abstention from specific treatment until evidences beyond this usually accepted symptom appear. It seems to me imperative to wait until such evidence becomes manifest to dissolve our doubts. And, while waiting for developments, the behavior of the mucous patches of the non-syphilitic appeared, to me, peculiar, in one of the cases. The rapidity of movement of the diseased area was unlike what I had seen in the syphilitic mucous patches and reminded me of the condition of the tongue known as idiopathic ulcers of the tongue of Schech or benign plaque of Caspary, where the disease also changes location rapidly; to this disease this condition seems in some respects analogous. The tendency to healing was from the edge, inward; while in syphilitic mucous patches, healing is from the center toward the circumference. Topical applications seem to have little or no influence on them, and their course extends over about two weeks with no tendency to relapse when healed. When there is no

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relapse and when no other manifestations occur we have no right, it appears to me, to look upon them as syphilitic, if primary infection can not properly be assumed.

It is the main purpose of these lines to establish the fact that non-syphilitic mucous patches do occur, and the conclusion we must adopt from it is that the existence of mucous patches in the absence of corroborating statements and evidence is insufficient for diagnosis for the treatment of syphilis.

XX.

DISEASE OF THE UPPER AIR PASSAGES IN RELATION TO MENTAL DEVELOPMENT.

BY LA FAYETTE PAGE, A. B., M. D.

INDIANAPOLIS, IND.

The two chief conditions within the organism which may retard mental development are an impure and imperfect blood supply to the growing nerve centers, and over stimulation from abnormal conditions which may exist in any organ of the body. The first of these conditions, an impure and imperfect blood supply, may be considered under the head of auto-intoxication as originating in the diseased portions of the upper respiratory tract. That this is a favorable region for the lodgment of germs and the elaboration of toxins would, it seems to me, be obvious to every one who has worked in these regions. Pantzer in a paper entitled "The Nose as a Factor in Post Operative Diseases" has called attention to this region as a source of infection. Bouchard in his work on "Intoxication in Disease" does not mention this part of the organism as being a source of intoxication. We may assume that the general doctrine of auto-intoxication is well founded, since so much convincing proof has been adduced in its favor. If this doctrine be true it only remains for us to show that the upper respiratory tract in disease is a favorable soil for the generation of toxic agents, and that they may be easily absorbed into the circulation owing to the rich glandular supply. We can readily understand how defective drainage and pressure in the nasal fossae and tonsillar tissues, causing swelling and stasis in the venous and lymphatic channels affect the brain functions. The intimate relation existing between the lymphatic spaces and the blood vessels of the nasal mucous membrane and the subarachnoid space has been thoroughly demonstrated. Schwalbe and Retzius were able to inject the lymphatic vessels of the nasal mucous membrane through the arach-

noid space. It has also been shown that an equally intimate relation exists between certain venous regions of the nose and the interior of the skull. The dullness which so often accompanies engorgement and stenosis of the nasal chambers is probably due to the large percentage of carbonic oxid contained in the stagnant venous blood. The capacity of the lymphatics connected with the upper air passages for rapidly absorbing toxic materials generated in this region is often observed in connection with diphtheria, tonsilitis and other acute affections. We sometimes see a rapid toxicity following a slight cauterization of the nasal mucous membrane with the electro-cautery. The frequent enlargement of the glands of the neck, associated with chronic diseases of the tonsils and chronic nasal catarrh, indicates the constant toxic absorption from these diseases. The ragged, irregular surface of the adenoid and tonsillar tissues covered with their tenacious secretions certainly offers an inviting soil for all forms of morbific germs. Hypertrophy of the follicles of the tonsils leads to contraction and engorgement of the lacunae with retention of the secretions which easily become infected. Upon removal of these organs we often find the lacunae dilated and filled with offensive pus. The effects of enlargement and disease of the adenoid and tonsillar tissues, in causing insufficient respiration, defective oxygenization, and infection of the intestinal tract (thus causing impaired nutrition) are too far-reaching in their effects on the organism and its development to be considered here. We have equally as prolific a source of septic infection from the nasal chambers and their accessory sinuses as in the tonsillar tissues. In the various forms of abnormalities and disease of the nasal fossae, and the often accompanying affections of the adjacent sinuses, we have all the conditions present which favor septic generation and absorption. Engorgement of the erectile tissues, the various irregularities of the septum occluding the orifices of the adjacent sinuses with polyps, hypertrophies, etc., are the common forms of obstructions which affect nasal drainage and are thus conducive to putrefactive changes. It is only necessary to refer to these sources of contamination of the blood supply in retarding mental development through imperfect nutrition, as their importance is already recognized.

We may next turn attention to the other phase of the subject, the effects of nasal irritation upon the developing brain centers. In considering the anatomic structure of the nasal fossae as compared with other organs of the body, it is evident that it must be a fruitful source of reflex irritations in a diseased state. Its erectile tissues are encased in a resistant, bony framework, so that pressure on the nerve terminations may be produced by any slight anomaly of development or variation from injury or disease. The peculiar physiologic functions of the intra-nasal tissues requiring constant adjustment to the changing thermal and atmospheric conditions, are such as require a most delicate nervous mechanism. The nerve supply is so rich and so intimately associated with the cortical areas of the brain that it is easy to understand how the psychologic functions of that organ may be disturbed by irritations arising in these parts. Through the sympathetic ganglia a very close relationship has been traced between the terminal nerve filaments of the nasal mucous membrane and the vasomotor nerves supplying the arteries of the brain and spinal cord. Authorities agree that sensory impulses may be transformed into vasomotor impulses, thus affecting the blood supply of the brain. Irritation of the fibrillae of the trigeminus, which forms the chief source of innervation to the upper air tract, may pass directly to the cerebral cortex through its connections in the medulla. Besides the trigeminus and its sympathetic connections we have the upper region of the nasal fossae richly innervated by the olfactory which is similarly associated with the cortical areas of the brain. Edinger says in his new work on "Comparative Anatomy of the Central Nervous System," that the cortex may be accepted as the location of those psychologic functions which are consciously executed after consideration through the use of memory pictures. So is the demonstration of a cortical bundle with the nucleus of a special sensory apparatus of great interest to comparative psychology. Hence, he says, the most important result up to the present time that we have been able to demonstrate is that the first cortical area developed in the animal kingdom was the olfactory cortex. It is an interesting fact in comparative psychology that the oldest cortex represents

only a single sensory center, the olfactory center, and that all associations which serve them as a foundation, all memory pictures which they retain, are such as serve especially the sense of smell. The relation between the nasal mucosa and the cerebral cortex through these nervous connections, the trigeminus, the olfactory, and the sympathetic, is so intimate that it is evident that any irritation arising in the intra-nasal spaces from disease or deformity may be transmitted either through the medulla or direct to the higher centers of the brain. As a result of the constant irritation passing into the nerve centers we have, in patients so predisposed, a great variety of reflex disturbances. There is a long list of paroxysmal disturbances whose etiology is directly due, or has been traced, to the diseases of the upper air tract. Among the most common forms we have sneezing, cough, laryngo-spasm, lacrymation, tinnitus, asthma, palpitation and headache. Among the rarer affections may be mentioned chorea, epilepsy, neurasthenia, melancholia and insanity. The course of these disturbances, or, as they have been termed, nerve storms, usually take the path of least resistance. Jackson speaks of them as *discharging lesions*, especially the epileptiform seizures. If the irritations initiated in the upper respiratory tract are sufficient to cause such violent discharges of nerve energy as we see in asthma, chorea, and epilepsy in those who are so predisposed, it may be readily assumed, that the same form of irritation in those who have a greater resistance may cause a gradual leaking of energy and a consequent weakening of the central nervous system. When those reflexes which have a physiologic purpose become exaggerated and continuous from some form of irritation, they become a source of drain on the energy stored up in the nerve centers. Some physiologists tell us that any excess of nervous expenditure to one organ over the normal amount which should be furnished is done at the expense of others, sooner or later. A bony spicula or an enlarged middle turbinate may, by constant pressure irritation, cause a weakening or exhaustion of its immediate nerve center with an increasing tax on those centers most intimately correlated, until the whole nervous system begins to show signs of over-taxation. The rapidity with which these symptoms of weakening show themselves de-

pends on the inborn vigor and resistance of the nervous system. The effects of these irritations on the nerve cells have been studied by Hodge, Nissl, and others. Every stimulus entering the cerebral cells calls forth a certain expenditure of energy stored therein, and it is plain that a constant over-stimulation means exhaustion sooner or later.

Donaldson says that repeated in-coming impulses produce certain changes in the cell bodies, that finally some of them discharge with a force and rhythm of their own, and once taken up by the central cells even slight stimuli diffuse themselves over the entire central system. Goldscheider in a recent essay defined the "neuron threshold" to be "the degree of excitation of a neuron which just suffices to call forth a fruitful excitation in a neuron to which it is in contact; that is, that sufficient to call forth a sensation, a movement, etc." These studies afford valuable suggestions in reference to the transference of excitation from one nerve center to another, and they also indicate what slight peripheral irritations may instigate enormous discharges of nerve energy (Barker). Friedrich has seen a true epileptic attack produced by nasal examination. The importance of normal stimuli to the cortical cells for their healthful growth and development can no longer be questioned. Gehuchten has emphasized the physiologic fact that for the maintenance of absolutely perfect function of the cerebral cells the relation of stimuli to the reparative, nutritive power of the cells must be perfectly adjusted. Edinger, Weigert, and others, assume that if the stimuli be received in excess a nerve cell is no longer able in the interval of active function to repair the loss sustained by the functional activity; as a result progressive degeneration ensues. Barker says that it will be the task of the clinical neurologist in the future to decide from his study of a given case as to the existence of abnormal neuron threshold values; further, what neurons are receiving an excess of stimuli, and what neurons are being insufficiently stimulated, and to outline his treatment accordingly. The treatment of neurasthenia, tabes, and many other degenerative processes, are based on these physiologic principles.

The writer has tried thus far to indicate in as brief man-

ner as possible those pathologic conditions which may exist in the upper respiratory tract, which favor toxic generation and absorption, thus affecting the healthful nutrition of the developing nerve centers; and especially to make clear the effects of irritations arising in this region causing over-stimulation of the brain functions. These are among the most important underlying conditions that so often exist within the organism which produce dullness and irritability. The effect of impaired nutrition and the constant drain on the plastic, immature brain soon manifests itself in impairment of the intellectual processes. Children with catarrhal disease or enlarged tonsils and adenoids soon become exhausted with any mental work. Their perceptions become quickly dulled, their memories become halting and inaccurate, and the reason grows illogical, while their bodily movements indicate restlessness and weariness. The general appearance of these children is so characteristic and their natures are so often perverted that their teachers recognize that some physical defect is retarding their development. Attention has often been called to the defects in physical development of children with enlarged tonsils and adenoids by various writers on the subject, while the mental condition is scarcely noted. The writer has been often impressed by the mental condition which exists in these children. It is a condition which deserves to be more generally appreciated. The change which takes place from removing the enlarged tonsillar tissues, or from securing proper nasal drainage, and relieving pressure irritation, is so conspicuous in lifting the cloud from the intellectual field that the change of expression may be noted in a few weeks from a dull, languid, despondent air to one of vigor and happiness. The constant night terrors and dreams which haunt the sleep of these children disappear and refreshing sleep at once follows the removal of the irritation. Where these conditions are allowed to remain throughout childhood and adolescence, their impress becomes a very important factor in determining character. A more thorough analysis with better data than the writer has been able to obtain, might contribute to the subject of mental hygiene, and give a better insight into those diseased states of the organism which affect mental growth and vigor. Among its most important teaching is that the stages of mental growth co-ordinate with the stages of physical growth and that any impairment of physical growth retards mental growth.

XXI.

ETIOLOGY OF NASAL DEFORMITIES*.

BY WENDELL C. PHILLIPS, M. D.

NEW YORK.

SURGEON TO THE MANHATTAN EYE AND EAR HOSPITAL, AURAL
DEPARTMENT; PROFESSOR OF DISEASES OF THE EAR IN
THE NEW YORK POST GRADUATE MEDICAL
SCHOOL AND HOSPITAL.

In opening the symposium on Nasal Stenosis it falls to my lot to present a few facts relating to the "Etiology of Nasal Deformities." This short paper is presented for the purpose of bringing out a general discussion rather than to describe the entire subject in full. Nasal deformities may be defined as such abnormalities of the nose in general, either external or internal, as may lead to defects in the external conformity of the organ, or the internal anatomic relation of the parts that go to make up the organ as a whole. Such deformities may or may not result in nasal insufficiency or stenosis. McBride states in his book on Diseases of the Throat, Nose and Ear that "From absence of the nose to a reduplication of this organ different stages have been met with. The septum has been found extending backward so as to divide the nasopharynx into two cavities." On the other hand, deformities that seem to be extensive from an external standpoint may not seriously interfere with the normal physiologic function of the nose. In this connection it is well to understand that there is a difference between nasal insufficiency and nasal stenosis. This fact has been clearly brought out by Pegler† in a recent article in which he says that nasal insufficiency is a term implying "a continuous or intermittent inability to breathe satisfactorily through the nose,

*Read before the middle section of the American Laryngological, Rhinological and Otological Society, December 29, 1900.

†The Journal of Laryngology, Rhinology, and Otology.

varying in degree from a comparatively slight inconvenience to anything short of actual obstruction." This condition may be bilateral or unilateral; it may be constant or periodical; as a matter of fact it is rarely continuous. On the other hand, stenosis results from abnormalities and deformities that give rise to a permanent and complete obstruction to nasal respiration. The causes of these deformities, whether resulting in insufficiency or stenosis, are in many particulars the same. Among the external deformities, collapse of the alae nasi may be mentioned as one that is rather common. This condition may arise from several causes, but seems chiefly to come as a result of prolonged intranasal or intrapharyngeal obstruction. Children who have long suffered from adenoid vegetations in the vault of the pharynx, come finally to present this condition. In fact it is one of the facial symptoms found among those patients who have suffered from the above-named condition. If the adenoids are never operated upon, or are operated upon after several years of suffering on the part of the patient, the collapse is liable to remain permanent. All have seen cases where the peculiar facial expression of adenoids is carried through life, even though a long delayed operation has been performed. Collapse of the alae nasi may also be congenital, or as a result of inadequate development of the nasal organ. Peculiarities of nasal outline are certainly congenital, and while we never inherit diseases directly, we certainly do inherit peculiarities of bodily contour. "Like father like child" is a maxim here as well as in other characteristics, malformation, deformity or anatomic peculiarity of the nasal tract may be as truly inherited as some peculiar external conformation.

Traumatism is an important factor in the causation of external nasal deformities. It also is a frequent form of internal deformity as well. Severe injuries to the nose may displace the nasal bones or septum and, if neglected, result in permanent nasal deformity.

Syphilis must also be considered as a cause of external deformity, although the destructive process takes place within the nasal cavity. Extensive external deformities of the nose are frequently due to the destructive ravages of this disease.

Next in turn might be mentioned lupus, a disease which results more or less in external deformity of the nose.

Tumors of various kinds, whether bony, cartilaginous or soft, and whether located within the nasal cavity, the sinuses or near-by structures, should be considered as a cause of external deformity of the nose. Deformity from this cause, especially in the later stages of malignant disease, or from osteomata are at times very extensive. One variety of external deformity might be described more fully. I refer to those injuries resulting from direct violence upon the nasal bones. The spreading apart of the nasal bones together with the impaction of the cartilaginous septum upon itself, results in a severe deformity, the nose being spread widely upon the face with a dip in its external contour. This variety of deformity is especially mentioned because of late a somewhat new operation has been recommended which has given favorable results by restoring the nose to a much more natural outline. Of the internal deformities of the nose, considerable may be said. That somewhat rare condition known as atresia should be first mentioned. By this term is meant a congenital closure of the nasal passages either anteriorly or posteriorly. When the obstruction is in front it is always membranous, but when the choanae are closed it may be either membranous or osseous. Another cause of internal deformity results from external injury to the nasal bones as described in the preceding paragraph. In these cases the nasal chambers may retain their usual size in the inferior meatus, but are partially or wholly closed in a superior meatus. The septum will also be much thickened as a result of impaction or else forced into some one of its deflections and deformities.

Disease of the turbinated bodies resulting in extensive hypertrophies, bone enlargements, and cysts, should receive our consideration. Of these the middle turbinated bone is the one most frequently diseased. Membranous hypertrophy of the middle turbinate is a rare condition, unless mucous polyps are to be considered under this head.

Cystic enlargement is a most common form of disease of this bone. It is not necessary before this body of trained rhinologists to go into the pathology of this condition;

suffice it to say that, barring the septum narium, it is the most common cause of internal deformity. Resulting as it does from disease of the contiguous sinuses, it opens up a wide field of most interesting study for the rhinologist. In my experience the inferior turbinated bone is not frequently diseased or hypertrophied; [it is often congested and inflamed and of course it varies in appearance, and apparently in size, while carrying on its normal physiologic function. This much-abused bone, subjected as it has been to the cautery, the knife, and various forms of escharotics, even when it might better have been left alone, is occasionally the seat of disease. As a rule it is a well behaved organ, but it may often appear to be out of place, when, as a matter of fact, its apparent abnormality is due to external influences like the narrowing of the external nose, collapse of the alae nasi, disease of the antrum, etc. Abnormality of the septum narium must be considered as the most frequent cause of intranasal deformity. The prominent position given to the nose in the make-up of the facial contour, a considerable portion of which is held in place by cartilaginous frame work, renders this cartilage a free victim to external violence.

In a paper read before the medical society of the county of New York, I called attention to it in the following words: "Injuries to the nose resulting in deformity of the septum or displacement and enlargement of the turbinated bodies may be considered a causative agent in the development of chronic catarrh. While not so prominent in young childhood, the nose is of sufficient prominence to render it the most liable of all the organs of the face to injury. Young children usually get their bumps, blows, and falls upon this organ. At this age the turbinated bodies are easily displaced and the cartilage easily twisted. A slight twist to the cartilaginous or bony septum, like a bend to the twig which results in the deformed and unsightly tree, transforms it from its normal shape into one of the various deformities so profusely described in rhinologic literature. Stenosis may result and may mark the beginning of what is destined to become an aggravated form of catarrh. These causes are mechanical and the development may be slow or rapid, according to the severity of the injury or to its special location. The stenosis acts as a mechan-

ical obstruction to both respiration and to the outflow of the normal mucus. It is usually anterior, and the changes in the highly organized tissues immediately posterior to the obstruction from a diminishing of atmospheric pressure, result in permanent thickening of the membrane and true hypertrophy. True, these results, because of their slow development, in their more serious forms, do not usually manifest themselves during young childhood, although the starting point in a large proportion of cases must be dated to the reception of an injury in early life. Thus traumatism plays an important role as a causative agent in the development of the affections under consideration."

Traumatism is not the only cause of deformity of the septum; it may be congenital or it may result from disease. The varieties have been variously described by many different observers. Kyle's classification serves the purpose very well.

"(1) The split cartilaginous septum, with bulging into both nostrils.

(2) Dislocation of the columnar cartilage.

(3) Simple deflection in which the cartilage is very thin.

(4) The letter S deflection.

(5) Deflection of the cartilage with involvement of the bony septum.

(6) Deflection due to the splitting of the cartilage, with bulging on one side only.

(7) Deflection in which there is redundancy of tissue overlapping the septum and extending close to the floor of the nose."

Osteoma of the articulation of the septum frequently enters largely into the general deformity of the septum itself. This is usually associated with enchondroma of the cartilage. The numerous varieties of septal perforations should not be overlooked as causative agents of internal deformity, while dislocations of the various anatomic structures entering in to the make-up of the nose, are also to be considered. Dislocations of the columnar cartilage are occasionally to be observed. Foreign bodies long retained in one or both nasal chambers occasionally result seriously. Syphilis, as heretofore mentioned, results in serious intranasal deformity, sometimes destroying the whole intranasal structure, often opening the external walls of the

cavity into the antrum of Highmore, the ethmoid cells, or the frontal sinus. Malignant tumors, especially sarcoma, and carcinoma play a somewhat important role in this same connection, although usually primarily found in nearby structures and cavities, the secondary encroachment into the nasal cavity is very extensive. Osteomata in a like manner enter the same domain. One other functional condition which results in internal deformity, may be briefly mentioned. I refer to hay fever and nasal hydrorrhœa. The water-logging of the soft tissues of the anterior nares destroys temporarily the internal contour of the nose.

In this brief paper I have attempted to outline the etiology of nasal deformities stating them as they have appeared to me from my personal experience, rather than from any prolonged consultation of the various authorities. Many important points therefore may have been overlooked, and it is to be hoped that the discussion which is to follow will help to perfect an otherwise imperfect presentation of the facts.

XXII.

A CASE OF ANGINA EPIGLOTTIDEA ANTERIOR.

BY S. E. ALLEN, M. D.,

CINCINNATI, OHIO.

At the meeting of the American Medical Association at Atlantic City, June, 1900, Dr. C. F. Theisen reported before the Laryngological section three cases of this disease. The discussion which followed showed that the gentlemen present were not inclined to look upon the affection as a distinct disease. As I have recently had a case of this form of angina, I desire to report the same, and to insist that we have to do with a distinct localized inflammatory condition of the anterior surface of the epiglottis; a condition which has nothing in common with the ordinary edemas, which we see in the larynx, on the uvula, etc.

F. C., male, aged 44, a man of perfect physique and exemplary habits, consulted me on June 7th. The night before he had been suddenly seized with a sore throat, and it soon became exceedingly painful for him to swallow anything. He had gargled and sprayed his pharynx without relief, and the swallowing of saliva became so painful that he could not sleep. The examination of the pharynx and naso-pharynx revealed nothing abnormal, not even a mild congestion. Inspection of the larynx disclosed a red, edematous swelling on the anterior surface of the epiglottis, almost filling in the valleculae. Otherwise the larynx was entirely normal. The swollen parts were quite hyperemic, showing an acute inflammatory process. The whole appearance was unlike any other laryngeal edema I had ever seen. There was no history of trauma of any kind. Temperature 100°, pulse 96, slight feeling of malaise. Treatment consisted of cold applications externally, and the swallowing of small pieces of ice. Locally, the parts were pencils with 5 per cent. nitrate of silver solution. In four days everything was again normal.

The above case I consider a typical one of angina epi-

glottidea anterior, as so well described by Theisen. Here we have a man in good health, of perfect habits, suddenly seized with an angina, accompanied with malaise and fever, and with the local manifestations limited to the anterior surface of the epiglottis. This was no alcholic edema, nor an edema which extended from an inflammed area near by. It was such a distinctly acute and localized affair, that one's first thought was of an injury from swallowing some sharp substance. No bacterial observations were made, so that no light can be thrown on the etiology. From this case, and those reported by Theisen in the transactions of the section on laryngology, I am firmly convinced that there is a rare but definite disease to be designated by the term at the head of this article.

22 W. 7th.

XXIII.

PHARYNGO-MYCOSIS.

ARTHUR G. ROOT, M. D.,

ALBANY.

LARYNGOLOGIST AND RHINOLOGIST, ALBANY HOSPITAL; CLINICAL
PROFESSOR OF LARYNOLOGY AND RHINOLOGY, ALBANY
MEDICAL COLLEGE, ALBANY, N. Y.

Pharyngo-mycosis is a somewhat uncommon chronic affection in which a fungus is developed at the mouths of the follicles or in the tonsillar crypts. Occasionally the growth extends to the pyriform sinuses and into the larynx. Leptothrix and bacillus facultatus are the fungi usually found in the deposits. It is most commonly a disease of adolescence and is supposed to be more frequent among females than males. There are many and various opinions as to the exact bacillary cause, in fact, there are nearly as many opinions advanced as there have been different authors. In a study of the history of the growth do we find our pathology.

The process is a slow growth, gradually spreading from one or two points, and presenting no symptoms save those of an objective character. The microscope usually shows well-formed mycelia within the mass, with sprouting tufts, holding more or less secretion in a process of degeneration, leucocytes, dried mucin, epithelioid cells.

These cells do not seem to be of deep origin, but appear to attach just inside the mouth of the follicles. The tissues of the surrounding parts are seen to be swollen and edematous, but the general nutrition of the part is not materially interferred with, as the lymph channels are not disturbed to any great extent.

I have said that the symptoms of this disease are almost entirely objective, for the patients might, and indeed do, often go on for a long time without knowing of the existing condition until they happen to see some of these whitish spots in the throat, or are told of them by someone

making an inspection of the throat in consequence of an attack of tonsillitis, or something of the sort. Indeed, mycosis is often mistaken under the diagnosis of follicular tonsillitis; slight soreness and stiffness of the throat may present, and patients often complain of a disagreeable taste. Upon inspection the appearances are quite characteristic. Dotted here and there over the surface will be noticed small, pearly-white tufts, very distinct and separate, rising above the surface of the epithelium, and clinging tenaciously to the structures. Upon attempting to remove these spots or tufts with a probe or cotton swab, it will be found quite impossible to do so, for they are embedded deep in the tissues and are of a spiral formation. Considerable force is required to pull out one of these little plugs and after removal the growth quickly reappears. If the disease has been present for a long time, it is occasionally found that these small tufts will coalesce or run together, and all the pharyngeal structures, together with the base of the tongue, become involved.

It is not likely that this condition will be confounded with anything else unless it be chronic follicular tonsillitis or a diphtheritic process, and a little study of the case will easily clear the diagnosis. I am not one of those who hold that mycosis is a pre-tubercular condition, although a low state of the general health, and digestive disturbances do probably in a measure predispose.

As to treatment, many things have been recommended, and the essential thing, aside from building up the patient's general health, is to destroy, as far as possible, all of the fungoid growth, removing by the use of curet or forceps. Applications of carbolic acid, chromic acid, and various astringents and antiseptics are used, but nothing does so much good as to remove all infected tissue, as far as possible, by means of the curet, forceps or tonsillotome. When this is difficult or impossible, use the galvano-cautery point.

All of these cases require long periods of treatment and much patience upon the part of both physician and patient.

In my own practice I recollect several cases, two of which occurred in females of one family, both cases having been looked upon as tonsillitis, each patient making a complete recovery after some months.

ABSTRACTS FROM CURRENT OTOLOGIC, RHINO- LOGIC AND LARYNGOLOGIC LITERATURE.

I.—EAR.

Mastoiditis Complicated by Paralysis of External Rectus.

PISCHEL, San Francisco. (*Archives of Otology*, Vol. XXX, No. 2.) A man, aged 34, four months before coming under observation had double-sided acute middle-ear suppuration. Pain again recurred in the right side of the head, mastoid tender on pressure. Mt. bulging. Temp. 100° F. Paracentesis was done and a muco-purulent discharge appeared. Diplopia with paralysis of right external rectus; veins of fundus oculi congested. Mastoid operation, now undertaken, showed antrum full of pus. The temperature still kept elevated 1° to 2° F. and a little pus kept coming away from the depth of the mastoid wound. Forty-one days after the first mastoid operation, the whole mastoid process was removed and the sinus exposed. Six and one-half months later, some suppurating mastoid cells were again curetted and in the detritus staphylococcus pyogenes albus was found. The diplopia still persisted. *Campbell.*

Acute Otitis Media, Cerebellar Abscess; Operation. Death from Meningitis.

PHILLIPS, New York. (*Archives of Otology*, Vol. XXX, No. 2.) The patient, aged 21, had scarlet fever at seven years of age. Three weeks before coming under observation he had suffered from an attack of la grippe, accompanied by pain in and discharge from the left ear. On examination the mastoid was tender on pressure, but there was no external redness or swelling. Two leeches were applied. Temp. 99.6° F. Pulse 80. Microscopic examination of the pus showed streptococci and diplococci.

Operation revealed pus beneath the periosteum. The entire cortex was removed. The antrum contained a small amount of pus and was carefully curetted. The lateral sinus was exposed and showed no signs of pulsation. An aspirating needle passed upward and downward in the

sinus withdrew no blood, so an incision was made in the sinus wall and clot removed till a free flow of blood followed from the upper end. The wound was packed with gauze and patient returned to his ward. For six days patient's condition was good. He complained of intermittent headache. The optic nerves were hyperemic. Three days later he passed into a state of coma. Temp. 100.4° F., P. 112, R. 22.

The next morning temp. 105.8° F., P. 118, R. 12. He had occasion intervals of consciousness. On removing the dressings, considerable pus was found upon the surface of the sinus, posterior to the knee. After removing the pus, it was found that a probe could be passed inward and slightly upward $3\frac{1}{2}$ inches from the external table. Upon removing the probe pus flowed freely.

This pus tract was enlarged with a bistoury and from the depth of the abscess, together with the direction taken by the probe, the author concluded that the abscess cavity must be in the cerebellum.

A long drainage tube was carried to the bottom of the wound and irrigations of 50 per cent. peroxid of hydrogen employed, and this followed by a sterilized solution of ac. boric. Each irrigation caused hiccup. From this time patient gradually improved, a septic phlebitis in the leg gave him but little trouble and the cavity was gradually closing. The wound was nearly healed and he was discharged, with orders to return daily for treatment. One week after his discharge from the hospital, he was suddenly seized with a violent frontal headache and persistent vomiting. His friends stated that he had eaten immoderately on the previous day.

He was screaming with pain which hypodermics of morphia could not control. While preparing for further operation he suddenly expired. On autopsy the dura was found to be adherent along the mesial borders of both hemispheres. The whole external surface of both hemispheres was covered with purulent exudates measuring $2\frac{1}{2}$ cm. in diameter. On removing the brain an orifice about 1 cm. in diameter was seen in the base of the skull on the left side, at a point corresponding to the mastoid process. A sinus large enough to admit the probe entered the left lateral lobe of the cerebellum. No abscess cavity remained

but an irregular blood-stained area extended inward about 2 cm.

Examination of the exudate and the depth of the brain tissue showed innumerable streptococci, which were probably streptococci pyogenes. *Campbell.*

Primary Otitis Externa from a Clinical Point of View.

SCHMIDT, Odessa. (*Archives of Otology*, Vol. XXX, No. 2.) As the lining of the auditory canal is a continuation of the integument in general, therefore we have the same differentiation in disease, viz., diseases principally of the epithelium (ichthyosis, the most pronounced form) and diseases with participation of the corium (dermatitis, mild form, and eczema, severe form).

The skin of the auditory canal, easily damaged and altered by dermatitis, appears to induce aural conditions favorable for infection. Scratching—infecting—produces furuncle and very frequently suppurative phlegmonous cellulitis in the auditory canal.

In squamous, unirritating dermatitis the author employs oil of thyme 1:100-1:1000.

As a remedy for the moist stage of dermatitis alcohol ranks first.

When infection from scratching has resulted, with acute swelling of the auditory canal, then try and disinfect the canal with cotton soaked in bichlorid of mercury solution 1:1000.

The fatty products of secretion and desquamation having been removed by means of probe and syringing, a tampon is carried in as far as the Mt. Another cotton plug is placed in the concha and over this a dry pad is applied. Then by removing the outer pad the patient applies by instillations a small quantity of bichlorid solution every 4 hours. The tampon in the auditory canal must be removed by the physician himself every 24 hours. Should pain be severe, hot, dry applications over the antiseptic dressings or morphine internally may be employed.

Should pus form then we have an aseptic region in which to make an incision. After incision we must continue the antiseptic occlusive dressing in order to avert reinfection.

Otitis externa mycotica is characterized by thimble-

shaped skin casts and black or reddish-yellow spots. Diagnosis is verified by the microscope and the disease subsides readily under treatment with alcohol.

Primary herpes and croupous inflammation are very rare diseases of the auditory canal.
Campbell.

Operative Treatment of Cerebral Abscess.

BALLANCE (*British Medical Journal*, No. 2112) advises the administration of chloroform in all cases of operation for intra-cranial abscess and withholds strychnin and morphin before the dura mater has been opened. He prefers the flap to the crucial incision.

In exploring for temporo-sphenoidal abscess the trephine should be inserted about seven eighths of an inch above the supra-meatal spine, and the object the operator should have in view should be to expose the lowest part of the middle fossa just external to the tegmen antri and tegmen tympani.

In operating for cerebellar abscess the trephine should be placed upon the bone so that its anterior edge touches the posterior border of the mastoid process—its upper edge should be just below Reid's base line—as in this way the horizontal and vertical portions of the sigmoid sinuses are avoided.

The author regards a sharp-pointed, long and narrow knife as the best instrument for incising the abscess cavity.

No abscess cavity within the brain should be irrigated unless two drainage tubes are so arranged as to insure free escape of fluid. For irrigation purposes normal saline solution is recommended. When the drainage tubes are successfully introduced they should not be disturbed for some time, but simply shortened as the cavity heals from the bottom.
Campbell.

Furunculosis of the External Auditory Canal Simulating Mastoid Periostitis.

CONNAL. (*British Medical Journal*, No. 2108.) The author calls attention to the anatomic structure of the outer ear, in that the cartilaginous tube is interrupted by two or three transverse fissures—the fissures of Santorini. These transverse clefts are filled in with fibrous tissue, which is continuous with the cellular tissue over the mastoid process. Again the upper part of the cartilaginous tube does not meet, the roof of the canal is filled in with

dense fibrous tissue, which serves the function of closing the upper gap and at the same time unites the cartilaginous tube to the temporal bone. This upper fibrous structure is continuous with the loose cellular tissue around the ear in front, above and behind.

Case I. A boy, aged 8, complained of deafness and great pain in the right ear. Examination showed two furuncles, one on the floor and one on the posterior cartilaginous wall. There was marked swelling over the mastoid, displacing the auricle downward and forward, while the edema involved the eyelids of the same side.

Case II. Was similar in character. The *staphylococcus aureus* was found in the pus of both cases. *Campbell.*

The Treatment of Chronic Suppurative Inflammation of the Middle Ear.

S. MACCUEN SMITH, Philadelphia, (*Therapeutic Gazette*, Feb. 15, 1901) confines his article to a consideration of the chronic, non-operative variety of suppurative disease of the tympanic cavity. After considering the diagnosis, and giving directions for an effective examination, the author proceeds to describe a line of treatment applicable to simple, uncomplicated cases. The ear should first be syringed with a warm antiseptic solution, followed by the cleaning out of all secretions from the Eustachian tube by means of Politzer's inflation or Siegle's pneumatic speculum. Sometimes it becomes necessary to resort to the Eustachian catheter or bougie. After drying the ear a few drops of a solution of silver nitrate (gr. 1 to 3 to the ounce) are instilled into the canal, while the head rests on a table, the affected side uppermost. The solution should be induced to pass through the Eustachian tube into the naso-pharynx by directing the patient to open and close the mouth several times or to make repeated efforts at swallowing. When this does not succeed, slight force may be exerted with Siegle's speculum or by drawing the auricle outward and forward, then closing the canal by firm pressure on the tragus with the thumb of the opposite hand at the same time relaxing the hold on the ear. The patient should syringe the ear, once, twice or thrice daily, 3 per cent. boric acid, 1-3 per cent. corrosive sublimate (for children 1-5 per cent.) and a teaspoonful of carbolic acid three parts, with glycerin, 1 part, to a pint of warm

water are suitable for irrigations. Cases that do not progress favorably under the above method should receive the dry treatment, which, however, is not indicated where the perforations are small. After syringing and instillation as before described, finely powdered boric acid alone or with an equal part of iodoform or zinc oxid is insufflated, a small strip of iodoform introduced deeply into the canal, and a pledge of cotton placed externally to catch discharge. The cotton is changed by the patient as often as required. Aside from caustics, actual cautery and surgical means, granulations may be dealt with by the instillation of alcohol, at first diluted one-half with glycerin, gradually increasing the strength as tolerance is established. Perforations centrally or superiorly situated must be enlarged by free incision down to the floor of the canal. In the majority of all cases, the correction of nasopharyngeal disease is quite as essential as treatment of the ear lesion, and most patients also need some general treatment for the relief of systemic disturbances.

Treatment of Chronic Otorrhea.

FRANK ALLPORT, Chicago. (*Jour. A. M. A.*, March 2, 1901). As regards their views upon the treatment of chronic otorrhea, ear specialists are divided into three classes: 1. The ultra-conservatives, who still possess abiding faith in the syringe, insufflations, drugs, and mild surgical procedures, such as the removal of polypi. 2. The conservatives, who try the above treatment for several months, and failing in this, resort to more radical measures. 3. The radicals, who, as soon as chronicity is established, proceed to open the mastoid antrum and tympanum. Among the first class are Ole Bull, Manning, Deutovitch and Samuel Sexton. In the second class are, Shepherd, Black, Stucky, Buck, Gomperz, Burnett, Randall, Reinhard, Politzer, McBride, Liscal, Guye, Grandenigo, Ermann, Barr, Faraci, Buller, Cheatle and White. Among the radicals are Stacke, Schwartz, Macewen, Siebenmann, Jansen, Holmes, Alderton, Lane and Gleason. Although undoubtedly satisfactory results have been accomplished by the methods advocated by the first school, their adherents are becoming smaller each year, and the ranks of the conservatives are being daily recruited from the ultra-conservative column. While is noted that the

radicals are among our foremost teachers of to-day, the principles of the conservatives for otologists in general are to be adhered to.

The Results of the Surgical Treatment of Inflammation of the Mastoid Process.

E. B. DENCH, New York. (*Jour. A. M. A.*, March 2, 1901.) In 273 cases operated upon, not a single death could be attributed to the operation. The writer makes the point that the mastoid operation in itself is perfectly safe, and is a warrantable procedure in doubtful cases. The mastoid antrum should be entered in every instance and in the usual manner. Closing a portion of the superficial wound with sutures in order to render recovery more rapid is in the writer's experience scarcely advisable.

A Case of Angeloma of the External Auditory Canal. Treated by Electricity.

L. EGGER (*Annales de Laryngologie, Otologie et Rhinologie*, April, 1901) reports a case in a girl, aged 16. The tumor was the size of a pea and seated on the postero-inferior wall of the cartilaginous part of the right canal. It was of a violaceous color in places, yellowish in others. For a month the patient had suffered pain while eating, produced by chewing and referred to the meatus. Pressure behind the angle of the jaw also evoked this pain, and conversely, pressure upon the tumor caused pain in the retro-maxillary region. The positive pole, represented by a needle, was implanted in the growth, and the negative pole, a large plaque, was applied to the left arm. A current of one to three milliamperes was used. After some weeks' treatment the tumor had almost disappeared, only six applications of the current being made during this time.

Tricophytosis of the External Auditory Canal.

BAR (*Annales des Maladies de L'oreilles et du Larynx*, May, 1901.) This article is summed up by the author as follows: (1) The majority of dermatomycoses may invade the external auditory canal and cause parasitic otitides, which must be diagnosed since they are hard to cure. (2) The trichopyton of Malmsten is one of the mucous growths capable of causing such inflammations. My observations are further proof, although the cases are rare. (3) The tricophytic otitides are either acute, sub-acute or chronic,

characterized by a dermatitis, sometimes very severe, by vesicular and suppurative eruptions, though these are sometimes simply erythematous and squamous. (4) Prognosis is good in acute cases; doubtful as to the integrity of the ear in insidious cases. (5) Diagnosis must be chiefly from furuncular otitis, otomycosis, impetiginous and squamous eczema, diffuse acne, the erythema of syphilitic roseola, and diffuse syphilides. Microscopic examination alone is able to decide the question as to the trichophytic lesions. (6) The treatment follows the general rule of all dermatomycoses; we must remember the etiology, the different phases of the disease, and the anatomy of the part where the lesions lie. Among the parasiticides which may be employed in such cases are solutions of sublimate 1-1000, and naphtholated vaselin 1-10.

Formalin in the Treatment of Otitis Media.

N. G. WARD, of Philadelphia. (*American Medicine*, June 15, 1901.) If the secretions are thick, the ear is syringed with 15 to 30 drops of lysol in a half glass of warm water. In those cases not requiring syringing, and also ten minutes afterward in those that do, 5 or 10 drops of a one per cent. formalin solution is warmed in a spoon and poured into the ear. In obstinate cases alcohol may be added, as,

Formalin	5 drops
Alcohol (95 per cent.).....	2 drams
Aqua	q. s. ad 1 ounce

The author claims the following results:

1. Fetid odor quickly disappears.
2. There is an early cessation of the discharge.
3. Protects against the formation of granulations, and small granulations are destroyed by alcoholic solutions.
4. Promotes healing of ulcerated mucous membrane of the external auditory canal.
5. Retards but does not entirely check bone necrosis.

A Case of Laryngeal Stenosis.

I. A. ABT, Chicago. (*Pediatrics*, June 15, 1901.) This case after two days of gradually increasing dyspnea, presented symptoms of well marked laryngeal stenosis. Efforts to introduce the intubation tube proved unsuccessful on account of an obstruction encountered in the larynx. Tracheotomy was performed, followed in 24 hours by death. The autopsy showed the lumen of the larynx greatly di-

minished in size, opened posteriorly and the mucous membrane covered by a smooth, white, glistening adherent membrane. Culture made of secretion found in the larynx by W. J. Class showed the diplococci described by him as the diplococcus scarlatinæ.

**The Importance of Early Recognition of Ear Trouble
in Children.**

MACLEOD YEARSLEY (*Pediatrics*, June 1, 1901), deplores the frequency of deafness in children due to failure on the part of the attending physician to recognize the existing ear affection in infancy. Often it is not until long afterward that the real trouble is appreciated, and it is then too late to effect a cure by treatment. Pain in the ear is due to inflammation or non-inflammatory affections. The latter, neuralgic, is rare in children. Loss of weight and elevation of temperature should always demand an examination of the ears. Hartmann regards intestinal disturbances in infants suffering from otitis media as being due to the reabsorption of the toxic poisons from the exudate in the tympanic cavity rather than as a result of infection entering the Eustachian tube during the act of vomiting. To the general practitioner the value of exclusion of ear disease cannot be overestimated.

**Superheated Air in the Therapeutics of Chronic Catarrhal
Otitis Media.**

C. W. HOPKINS, Cleveland (*New York Medical Record*, June 1, 1901), advocates the employment of superheated air in the treatment of chronic catarrhal otitis media in cases which are characterized by ankylosis of the ossicles. A description of one case is given in full, in which the result was good, and in which there is no evidence of recurrence after four years. The author has treated sixty-two characteristic cases of this disease with but four failures, and these occurred in very old people, all of whom had extensive labyrinthine involvement. The apparatus used is a simple room-heater operating either by gas or oil, and having a funnel-shaped top, which sends the hot air through a canvas sleeve to the ear under treatment. The ear is thoroughly cleansed with alcohol, and when perfectly clean, narrow strips of gauze are packed into the ear and a large pad of gauze placed over the ear. The ear is then covered with the canvas sleeve,

and a current of air sent into the canal at a temperature which gradually attains 400° F. The only discomfort that may arise is a severe headache, which is promptly relieved by a dose of codein. The patient is not allowed to leave the office for a half-hour after treatment, and the ear is then tightly packed with warm cotton. The gauze packing within and over the ear takes up all moisture as rapidly as formed, preventing burning and making the application of very high temperatures easy and without discomfort. It is essential that there be sufficient draught to secure perfect combustion, and that there be at least one perforation in the canvas sleeve near the point of contact with the ear, or the dead-air space present will prevent the hot air from reaching the ear.

A Case of Membranous Angina, Due to Streptococci, Followed by Paralysis of the Soft Palate.

M. KESCHNER, New York (*New York Medical Record*, June 1, 1901), reports this case. When first seen, the tonsils, uvula, anterior and posterior pillars of the fauces were covered with a thick, dirty, yellowish-gray, tenacious membrane. A smear from it showed short-chained streptococci, a few staphylococci, no Klebs-Loeffler bacilli; a culture on blood serum showed almost a pure growth of streptococci. In one week the membrane entirely disappeared, the patient in the meantime presenting the classic symptoms and signs of local diphtheria, and giving evidence of profound systemic infection. On the tenth day after the onset of the affection, the patient had difficulty in swallowing, the voice began to acquire a nasal twang, and on the following day liquids regurgitated through the nose on deglutition. The palate was seen to hang down vertically, with distinct loss of sensibility in the palate. There was no evidence of paralysis in any other part of the body. Large doses of strychnin were administered and in ten days improvement was present. The author believes that the paralysis in this case should be ascribed to one or two things, or possibly both: (1) Pressure paralysis from direct action of the inflammatory process. The palatine nerves being contiguous to the inflammatory process of the primary disease, it is probable that they are influenced by the abundant growth of micro-organisms in the false membrane, which often penetrate in-

to the substance of the mucous membrane, and even to the tissue beneath. (2) A neuritis with paralysis, due to the action of a toxin generated by the streptococci, in the same manner as we get a neuritis from the toxins generated by Pfeiffer's or Eberth's bacillus.

Naso Orbital Hyperostosis Due to Distension of the Frontal Sinus.

ROLLET (*Lyon Medicate*, March 31, 1901), believes that mucocoele of the frontal sinus results from a chronic inflammatory hypersecretion with retention of mucus, causing over-distension of the cavity of the sinus. In 1896 he showed a case to the Société de Médecine of a youth, aged 18, who had an old-standing hyperostosis obliterating the bridge of the nose, followed by symmetrical orbital tumors, which appeared eight months before operation. On trephining, the sinus was found distended with a mucous fluid. In three other cases of mucous distension the hyperostoses have been noted; in one of them, however, the bony growth was unilateral. Rollet has also found the hyperostoses in two cases of old-standing empyema of the frontal sinus upon which he has operated. The tumors are often fluctuating in parts, and this fact, together with their exact limitation to the naso-orbital region, should suffice to distinguish them from osteomata and syphilitic exostoses. The cases usually occur at the period of adolescence, but the theories of primary bony overgrowth, and primary obstruction of the canal are not as probable explanations of the occurrence as is the theory of primary inflammation. In one of the cases mentioned, pressure caused the tumor to empty itself into the nasal fossa.

Nasal Conditions Observed in the Aged.

B. DOUGLASS, New York (*New York Medical Journal*, May 25, 1901), has noted in his experience that very few people over fifty years of age seek advice for the relief of nasal troubles, while the majority of patients who seek advice, either at the hospital or in private practice, are between the ages of sixteen and forty years. In old age, with its decreasing vitality, the greater liability to disease is not diminished and we should expect the aged to complain of the effects and symptoms of nasal and pharyngeal affections. The reason for the fact that so few old people seek relief from such conditions, the author believes, must be

that, although the lesions are present, they do not cause the symptoms that they give rise to earlier in life. Five cases are cited in which distinct and even marked changes are found upon examination, in none of which did the patient complain of any symptoms. It is also shown that symptoms of discharge, pain, or obstruction are not in proportion to the amount of lesion present, but in certain cases may be entirely absent in the presence of well-developed lesions; that chronic congestive interference with circulation, lymphatic obstruction, and neurotic temperament, are very important elements in nasal cases, and that the cure of the patients who suffer from nasal symptoms often will not result from mere mechanical removal of the lesion present in the nose. The author believes that some of these cases may be explained on the ground that the changes occur so gradually and yet so constantly that the lesions in the nose may be present from internal blood or lymphatic irritation, while active inflammatory symptoms, such as obstruction from paralysis of blood vessels, discharge and pain, may be entirely absent.

The Ocular Expression of Intra-Nasal Lesions.

ROBERT SATTLER (*Jour. A. M. A.*, May, 18, 1901), notes that ocular symptoms are not uncommon attendants of focal suppuration of the nasal cavities. Chronic lesions of the anterior region of the middle meatus; the most anterior cells of the ethmoidal labyrinth, etc., have two principal clinical expressions: (1) Persistent injection of the vessels of the ocular conjunctivae, with prominence and distension also of the muscular branches, often accompanied by passive edema of the retro-tarsal folds. Sometimes there is retraction of the upper lid and a peculiar stare. (2) Prolonged and severe suffering from continued effort in reading or close work. It is more pronounced early in the day and wears off; it is of a neuralgic character, and is referred to various points about the orbit. These patients are usually neurasthenics. Cases of chronic suppuration in the inferior meatus, ethmoid cells or sinuses require radical extirpation of the tear-sac by cauterization or excision, with or without removal of the lacrimal gland. Every vestige of fistulous tracts should be removed.

A Brief Note on the Pathology, Diagnosis, and Treatment of Nasal Accessory Sinus Affections.

E. LARUE VANSANT (*Jour. A. M. A.*, May 18, 1901),

makes special mention of affections of the accessory sinuses due to closure of their natural outlets by swelling and thickening of the mucous membrane at the nasal openings, or by small masses of granulations, or even by inspissated mucus obstructing the openings. Such occlusions give rise at times to pathologic changes resulting in sinusites, or at others, a chronic congestion of the membrane seems to be the result. Headache of a dull, boring character is the most prominent symptom of these affections. The pain is nearly always a localized one, although several localities may be implicated at the same time. It is usually increased when the patient "catches cold." Inspection of the nares will frequently reveal the cause of the obstruction, which, of course, we seek to remove. Whenever possible the natural outlet of the sinus should be opened. Most gratifying results have been obtained in these cases by forcibly syringing the opening with hot air used under pressure. The air is used as hot as the patient can bear it, and under a pressure of from 30-40 pounds. The nasal chambers are thoroughly cocainized and this followed by application of extract of suprarenal capsule. Acute sinusitis treated in this way, aided by hot water applications externally, low diet, attention to digestion, etc., will usually yield in a few days.

II.—NOSE AND NASO-PHARYNX.

Nitrate of Silver and Other Salts of Silver in the Treatment of Inflammation of the Mucous Membrane of the Upper Respiratory Tract.

E. B. GLEASON, of Philadelphia (*Therapeutic Gazette*, Mar. 15, 1901), says that the old method of treating atrophic rhinitis by insufflation of silver nitrate (10 to 20 grains to the dram of stearate of zinc by the physician once or twice a week, and 1-10 that strength by the patient every three or four hours), can still be employed to advantage. Fused silver nitrate is occasionally used for searing the stumps of polyps or cauterizing exuberant granulations; but solutions of the same salt are rarely employed within the nose. Organic salts of silver, however, in solutions of 20 to 30 grains to the ounce, are unirritating and display well-

marked astringent and bactericidal properties. Painting the lateral walls of the pharynx and tonsils with a 12 1-2 per cent. solution of silver nitrate two or three times a day is one of the best methods of abating acute pharyngitis and tonsilitis. The sedative effects of the application are so marked that the patient is usually able at once to swallow without much discomfort. The posterior wall of the pharynx should then be painted with a solution of protargol, one-third as strong. The same treatment is equally effective in follicular tonsilitis providing the remedy is applied to the tonsillar crypts after they have been freed from pseudomembrane.

The Management of Nasal Catarrh.

CHARLES GRAYSON, of Philadelphia (*Therapeutic Gazette*, Feb. 15, 1901), holds that nasal catarrh is no more than a symptom of some dietetic disorder or of some persistent disturbance of nutrition. Accordingly, he lays the greatest stress upon a critical attention to the patient's personal hygiene and environment. In coryza, rapid and thorough elimination will be the keystone treatment. The routine treatment of popular combinations of opium, belladonna, aconite, etc., is ill-judged. Locally, suprarenal extract with chlorethane as a spray is particularly recommended during the stage of acute tumefaction and rhinorrhea. At the time of rapid epithelial desquamation and mucopurulent discharge, a spray of distilled extract of hamamelis, one part to three parts of water, supplies the mild astringency indicated. When active hyperemia has given place to sluggish venous congestion, Boulton's solution affords the proper stimulation. All applications must be preceded by an alkaline cleansing spray, such as Dobell's. In the management of chronic hypertrophic rhinitis, the author deprecates haste in resorting to destructive agents, advising the prior arrest of the underlying catarrhal process. Beginning with hamamelis and Boulton's solution, iodin in increasing strength from 1 to 30 of glycerin is used until the tissues are no longer responsive. Light touches of fused chromic acid are now made to several of the more prominent points of the turbinate, and finally, if cauterization becomes necessary, one or more slender lines may be drawn upon the lower border of the enlarged turbinate for about two-thirds of the length. The fibrin-

ous exudate which follows should be allowed to remain undisturbed until it spontaneously loosens. In the cure of atrophic rhinitis frequent cleansing with physiologic salt solution or other inexpensive preparation by means of a Birmingham douche or rubber ball syringe with flexible tip is the first requisite. Formaldehyde 1-5,000 to 1-500, menthol 1 to 5 per cent., ichthyol 10 to 30 per cent., or iodin from 37 up supplies the indicated stimulation. These remedies should be rubbed into the entire mucous lining by means of a cotton carrier.

Experience With Tracheotomy.

J. ROGERS, JR., New York (*N. Y. Med. Rec.*, April 27, 1901), reports a series of seven cases, of which four were laryngotomies and ten tracheotomies, without a death which can be ascribed to the operation. Cocain should always be used when the patient is controllable; but children or patients who cannot be kept quiet require chloroform, and in no instance did it cause trouble. Most of these patients suffered division of the cricoid cartilage, and experience seems to demonstrate that such an operation, if the canula has to be worn for any length of time, invariably leads to subsequent bad cicatrical contraction, which can be cured only by prolonged intubation. It can, however, be permanently overcome in every instance. Laryngotomy, except for tumor, is useless. The high opening of the respiratory passages, on the other hand, has some distinct elements of safety in its performance. A low tracheotomy presents only the doubtful advantage of a less probability of subsequent stricture above a long-retained canula. If the stenosis is not chronic, and there is hope of a speedy cure by a simple trachetomy and the wearing of a canula a few weeks, and also if a careful dissection is possible, the low operation is preferable. In general, and especially for emergencies and for chronic stenosis, which must subsequently be treated by intubation, the high operation is safer and better than the low. Granulations, as a complication, were not encountered in any of the cases reported, and in several of them the canula was worn for long periods. Granulations develop at the upper angle of a high tracheotomy wound, but do not in themselves give trouble. They are merely a prelude to the subsequent cicatrix, which draws the trachea to-

gether in a dome-shaped pouch above the canula, and this contraction seems to be the worse the nearer the wound is to the vocal cords.

Acquired Syphilis of the Nose and Pharynx.

C. A. PARKER (*Lancet*, Jan. 26, 1901), treats of this subject under the separate heads of nose and pharynx. Primary syphilis of the nose is very rare. Secondary syphilis manifests itself as (1) coryza, (2) mucous patches, (3) rhinitis erythematosa and rhinitis papulosa, (4) superficial ulcerations. Tertiary syphilis appears as (1) gum-mata, (2) superficial ulcerations, (3) deep ulceration and necrosis, (4) scars, adhesions and deformities. As complications are found middle-ear troubles, involvement of accessory nasal sinuses and pharyngitis, etc. As for the pharynx, the primary lesion is fairly frequent and is usually located on a tonsil. Secondary syphilis arises as erythema, mucous patches and superficial ulcerations. The tertiary lesions are (1) gum-mata, circumscribed and diffuse, (2) ulcerations, (3) scars, contractions and adhesions. The adhesions are usually of the following forms: (a) Adhesion of the posterior pillar of the fauces to the posterior pharyngeal wall, causing a dragging of the uvula and palate to the affected side. (b) Unilateral adhesion of the palate to the posterior pharyngeal wall. (c) Adhesion of almost the entire palate to the posterior pharyngeal wall. (d) Total atresia. (e) Adhesion between the base of the tongue and the posterior pharyngeal wall. (f) Adhesion of the velum to the base of the tongue. As treatment is recommended iodin of potassium internally, and mercurial inunctions, with gargles.

Supraorbital Headache Due to Eye Strain. Nasal Neurosis.

SAMUEL G. DABNEY, Louisville, Ky. (*Pediatrics*, Feb. 15, 1901.) The first case presented is a child, 11 years of age, complaining of severe supra-orbital headaches, as a result of eye strain, due to astigmatism, as it most frequently is. The nervous strain involved in the effort of the ciliary muscle acting upon the crystalline lens to so change its curvature as to compensate for the corneal error, and thus to give perfect vision, provided the error is not too great, produces headache.

Another patient complained of a thin, watery discharge from the nose, with frequent attacks of sneezing. He,

like many of these cases, presented simply a turgescence of the membrane lining the turbinate tissue without any hypertrophy. This condition is really a neurosis, for which the following is very efficacious:

Arsenic acid.....	1 grain.
Sulphate of strychnin.....	2/3 gr.
Ext. of belladonna.....	
Phosphide of zinc	a.a. 4 gr.
Extract of gentian q. s. ut ft. pil. No. xx.	

The Correction of the Deviations of the Nasal Septum.

J. O. ROE, Rochester (*N. Y. Med. Journal*, April 13, 1901), discusses chiefly his own method of correction and the principles on which it is based. The instrument used is a fenestrated forceps, one blade of which is made in the form of an ovate ring, and the other in the form of a long, narrow, rounded blade, which fits loosely into the former, so that the septum is not unduly compressed or lacerated. The handle is sufficiently long so that the frenum of the nostril is not compressed when the force of the blade is applied to the septum. The male blade is inserted into the nostril on the convex side of the deflection and the ring blade on the opposite side, when, by closing the blades, the deflected portion is crowded into and partly through the opening far enough to forcibly indent the central portion and fracture it without disturbing or bringing a strain on other portions of the septum. In straightening a deviated septum, no matter if the deflection is confined to the cartilaginous portion alone, it is of the utmost importance that the bone at, or adjacent to, the attachment of the cartilage be fractured. In this way the change in the direction of the attachment of the cartilage is made in the bone, so that it permanently holds the cartilage in its new position. This method is also of service in cases of moderate deviations of the cartilaginous portion alone, by simply fracturing the adjacent part of the cartilage into the fenestrated blade. With this instrument also, the cartilage can usually be fractured sufficiently to overcome the elasticity without the necessity of incising or lacerating it. The most satisfactory support for holding the septum in place is a plug made of sterilized cotton or gauze wrapped around a small metal plate to give it firmness,

and of the requisite size to fill the nostril completely. This is placed in the previously occluded nostril or the convex side toward which the septum has been deflected. The author further discusses the method of incising the cartilage to provide for redundancy, and the details of the operation for straightening the septum.

"Cold In the Head:" How It May be Avoided and How to Treat It.

GEO. C. STOUT (*Therapeutic Gazette*, Jan. 15, 1901), presents a readable article on the etiology, pathology, symptoms, prophylaxis and treatment of acute coryza. The chief underlying cause is a depressed state of the nervous system which results in sluggishness of the heat-producing centers. Rational clothing, avoidance of draughts, care of the digestive functions, and maintenance of nervous tone are the chief element of prophylactic care. Too much clothing is more apt to be worn than too little. As a preventive measure, a brisk dry massage of the body and limbs, morning and evening, is excellent. After an attack has started, the bowels are to be regulated by a saline cathartic, nerve tone increased by strychnin and excessive nasal discharge restricted by the following tablet:

R Morph. sulph., gr. 1-32;

Strych. sulph., gr. 1-95;

Atropinæ sulph., gr. 1-150;

Acid. arsen., gr. 1-100;

Aconitin, gr. 1-1,000.

M Sig.: One to three daily according to symptoms.

Once daily local treatment is given by the physician with great gentleness. The nose is first thoroughly sprayed with an alkaline antiseptic solution, then by a 1 per cent. solution of cocaine containing 2 grains of boric acid to the fluid ounce. After about five minutes is used a 2 per cent. solution of antipyrian followed in 5 minutes more by a very light insufflation of calomel and finally by a protective spray of 1 per cent. menthol in liquid vaselin.

Aerothemic Treatment in Nasal Affections.

L. LICHTWIZ (*Annales de Laryngologie Otologie et Rhinologie*, April, 1901), says that the treatment of certain nasal affections such as spasmodic rhinitis, acute and subacute coryzas, hypertrophic rhinitis, etc., may be divided into two classes; surgical, consisting of cauterizations, partial and complete turbinectomy, and medical, consisting of nas-

al and retranasal douches, fumigations, powders, ointments, etc. The first he considers too severe in proportion to the lesion, and the second as inefficacious, even dangerous sometimes in the case of the nasal douche. He has therefore begun using a current of air, heated to 70 to 90 C., in the nasal cavity. The warm air generator modeled after that of Gautier and Larat, is a copper coil heated by a Bunsen burner. To this is attached a flexible tube with a canula tip, by which pressure and temperature can be regulated by a reservoir containing air compressed to 120 atmospheres by means of an electric pump. From his experience he concludes that this method ought to be employed in three classes of cases:

1. The affections grouped under the generic term of spasmodic rhinitis. 2. Acute and sub-acute rhinitis—with or without involvement of the sinuses. 3. Hypertrophic rhinitis with obstruction. Clinical reports of a case of each affection are appended. The air is applied for about three minutes at each sitting. Other diseases in which this treatment is indicated are lupus of the mucosa, rebellious epistaxis, torpid ulcers and certain maxillary sinusites.

A Nasal Condition Affecting the Ocular Muscles.

The *Medical News*, July 27, publishes a paper on this subject by DR. HEBER N. HOOPLE, read at the 7th annual meeting of the American Laryngological, Rhinological and Otological Society held in May at the New York Academy of Medicine. His thesis is "that faulty pressure within the nose can cause asthenopia of both the ciliary and external ocular muscles," when such pressure exists in Mackenzie's "reflex area," affecting chiefly the middle turbinate body, the adjacent septum and the ethmoid cells when compressed by simple mechanical means (such as spurs or displacement), or by swelling, the result of inflammatory action. The hemianopsia found in these cases is dependent, as shown by Snow, Loeb and others cited, on the same condition of pressure, but is not itself a symptom of asthenopia. The two are concomitant, dependent on disturbance of the same sensorimotor branches of the fifth nerve. Reference is made to cases reported by Maxwell and others, in which accommodative asthenopia was cleared up by treatment of the nasal fault;

also to cases reported by De Schweinitz and Ziem, in which muscular asthenopia was found to be dependent on pathologic conditions in the same area, e. g., the presence of sinusitis, and which disappeared when the pathologic conditions were removed.

The author cites six cases belonging to a restricted type of patient, named by Gradle the *normal asthenope*, and rests his thesis on this type alone, excluding cases of the less conclusive *neurasthenopic* type.

Case V shows changes in behavior of both ciliary and external ocular muscles brought about by mere mechanical pressure in divulsion of tightly pressing middle turbinates. Cases VI, VII and VIII record changes in same muscles tested thoroughly before and after treatment by ablation of a tightly compressed middle turbinate. In these cases, coincidental with the removal of the symptoms of asthenopia, there was the disappearance of the accompanying hemicrania, the symptom most in evidence to the patients.

The Influence of Mouth-Breathing upon the Dental Arch.

M. D. LEDERMAN, New York (*New York Medical Journal*, July 13, 1901), states that during the early period of childhood our efforts should be directed toward remedying mouth-breathing, in order to avoid the evil effects which may result to the growing osseous structures of the oral cavity and neighboring tissues. Nasal and post-nasal obstruction are the most frequent factors that bring about the mouth-breathing habit. If such a condition is found by the dentist, to whom a child is often brought for an increasing deformity of the palate, he should advise the removal of the obstruction as well as suggesting some form of mechanical aid to rectify the existing deformity. The untoward results are produced by the faultily directed atmospheric and muscular pressure. The temporary teeth rarely deviate from their proper position in the alveolar arch, but irregularity of arrangement in the permanent set is not an uncommon occurrence. The most common form of such displacement is caused by the presence of temporary teeth beyond the time of shedding, owing to some disturbance in the process of absorption. This condition is frequently secondary to some defect in the general system, and the evil influences of mouth-breathing

are so common in early life, that attention to the local affection in the pharynx is emphatically indicated. When the mouth is closed, the tongue rests against the teeth, the alveolar processes and the palate, thus equalizing the pressure of the cheeks against the lateral portion of the maxilla. This provision of nature loses its influence when the mouth is kept open. Thumb-sucking is also a factor which is suggested as an exciting cause of the dome-shaped palate. To avoid such malformation, prophylactic measures must be employed at an early period, and the exciting factor removed in the early years of childhood.

III.—LARYNX.

Contribution to the Study of Hereditary Syphilis of the Larynx.

AUBIN. (*Bulletin de Laryngologie, Otologie et Rhinologie*, Mar. 30, 1901.) Laryngeal hereditary syphilis is more frequent than generally believed.

Frequently laryngeal affections persist and return in children, and simulate chronic tracheo-laryngitis, laryngismus stridulus, edema of the larynx, while they are only laryngeal lesions of hereditary syphilis (ulcerating gummi, etc.), whose nature is usually misunderstood. Diagnosis of these lesions is possible by a single laryngeal examination.

The presence on the patient's body of specific lesions or dystrophic stigmata is an element of great advantage in doubtful cases.

These laryngopathies are of grave prognosis, especially since they affect the functioning of the organ, and because they give rise to progressive stenoses which may lead to fatal results.

They are remarkably influenced by specific treatment (iodin in large doses, hypodermic injections of the biniodide of mercury).

The cicatricial contractions justify surgical treatment.

Contribution to the Study of Laryngoceles.

PELLETIER. (*Bulletin de Laryngologie, Otologie et Rhinologie*, March 30, 1901.) Laryngoceles are tumors filled with air, lying in the larynx. They are divisible into two

principal groups: (1) Laryngoceles unaccompanied by solution of continuity of the laryngeal walls. They are usually intralaryngeal. Their cause is a dilation of normal or abnormal cavities lying in relation to the larynx.

Of these there are two observations by Carrey, successfully treated by reposition and compression.

Abnormal cavities of congenital origin give two types of laryngoceles.

The first corresponds to the "ventricular laryngcele" of Virchow. It is due to a dilatation of the prolongation of Morgagni's ventricle. The tumor is then intralaryngeal, and situated behind the membrana hyo-thyroideus.

It is visible by laryngoscopic examination even without an external manifestation and the cyst is little developed.

The second corresponds to the description of Bennet and Gruber. The diverticula of the distended ventricles of Morgagni form two tumors separated by a retracted portion. One is intralaryngeal, the other extra-laryngeal and lies in front of the membrane thyro-hyoideus.

In short, it is the intermediate type between the laryngoceles without and laryngoceles with solution of continuity of the laryngeal walls.

The tumors are more or less rounded, without adherence to the skin. They are usually reducible by pressure.

Functional troubles of the voice, and especially respiration, vary with the volume of the tumor. That it is which calls for surgical intervention. Compression is only a palliative means, without permanent action on the intralaryngeal tumor. We ought therefore ablate both extra and intralaryngeal tumors, which can be done by tracheotomy.

(2) Laryngoceles resulting from a solution of continuity of the laryngeal wall. They are usually extra-laryngeal. In one variety the solution of continuity would be incomplete. The laryngeal mucosa would be intact and would form a hernia through the solution of cartilaginous continuity. The existence of this variety has never been shown.

In a second variety the solution of continuity is complete. It can be due to a congenital lesion of the larynx, a traumatism or an ulceration of the larynx.

For the laryngocoele to be produced under such conditions it is necessary that the aponeuroses situated against the larynx be intact. These limit the walls of the pocket and prevent the air from passing from pocket to pocket in the cellular tissue of the neck.

These laryngoceles form round and smooth tumors of variable size. They are adherent to the deeper parts, although the skin is movable on their surface. They are sonorous on percussion; their reducibility is inconstant, due without doubt to the narrowness of the laryngeal fissure.

The treatment varies with the cause. In laryngoceles due to a tuberculous ulceration of the larynx, it would be prudent to resort to a palliative treatment, to avoid everything which aggravates the laryngocoele and to exert moderate compression on the tumor.

Throat Paralysis in a Case of Locomotor Ataxia of an Irregular Form.

JOHN EDWIN RHODES, Chicago (*Jour. A. M. A.*, June 22, 1901), reports a case occurring in a male railroad employe, 35 years of age. The complete diagnosis was: An ascending sclerosis of locomotor ataxia causing ptosis of the right eyelid and divergent squint of the right eye, paralysis of the left half of the palate, and abductor paralysis of the right vocal cord. On examination of the larynx the right vocal cord was stationary in the median line, there being a paralysis of the posterior crico-arytenoid on the right side—the abductor of the vocal cord. All other conditions of the throat were normal.

In this patient, the previous history was good, no bad habits or history of specific trouble. He had suffered from sharp lancinating pains in the lower extremities, habitual constipation, and frequent micturition that could not be well controlled. He complained of a slight tickling sensation in the larynx, which occasionally excited cough.

IV.—MISCELLANEOUS.

Contribution to the Study of Hysterical Aphasia.

MISS G. ARON. (*Bulletin de Laryngologie, Otologie, et Rhinologie*, March 3, 1901.) Hysterical aphasia really ex-

ists and assumes the same forms as aphasia of an organic origin. It sometimes takes the form of a special kind of aphasia such as pure verbal blindness, verbal deafness, etc.

Its beginning is abrupt, as is its disappearance, and its duration is short; consequently the intelligence remains intact.

The disease recurs, and co-exists with stigmata of hysteria. As to its pathogeny there are numerous hypotheses among which the most recent is that of engorgement of the cerebral centers.

Prognosis is good, cure may come without treatment and spontaneously, but is sometimes assisted by reeducation in speech.

The Role of the Nasal Fossæ in the Prophylaxis and Treatment of Pulmonary Tuberculosis.

DR. MAURICE MIGNON, Nice. (British Council on Tuberculosis.) When we consider the question of the prophylaxis of tuberculosis, we must recognize the fact that contagion takes place chiefly through the air. Air is the vehicle by which the microbes invade the organism far more frequently than foods, which can be sterilised by cooking. When the air is still infective, in spite of the use of spittoons, in spite of the practice of disinfections, in spite of every precaution intended to prevent the spread of the disease, the nasal fossæ are still capable of arresting the danger that threatens us. The microbes that enter with the air are, in a large measure, arrested by the cilia of the nasal vestibule and by the very extensive and very irregular surface of the mucous membrane. One may thus recognize the bactericidal function of the nasal mucus, although it has been questioned by some authors. Clinical experience teaches, indeed, that the nasal fossæ are much more resistant to tuberculosis than the rest of the respiratory tract, and even than the bucco-pharyngeal cavity. Insufficient-nasal permeability (nasal obstruction from malformations of the septal ridges, from hypertrophic or congestive rhinitis, from cysts, vegetations, adenoids, etc.), should therefore be reckoned among the dangers of tuberculous infection.

From the point of view of treatment the state of the nasal fossæ is of equal importance. As the nose allows more air to enter than the mouth, nasal insufficiency results in

deficient oxidation of the blood, and everyone knows how necessary oxygen is to the tuberculous. Entering by the mouth the air brings with it harmful microbes, which, accompanied by dust, favor the malady. Moreover, this air, insufficient and injurious, is unmodified, either in temperature or in pressure; it provokes bucco-pharyngeal, laryngeal and tracheo-bronchial inflammations which impede the action of treatment.

It is therefore absolutely necessary that we should be satisfied that patients presenting themselves for examination (especially those disposed to tuberculosis, and those who are themselves tuberculous) are not suffering from any form of nasal insufficiency. If any defect is present it should be remedied, and we should enjoin the patients to breathe solely by the nose as soon as they are able, for this habit often plays a part. Instruction on the latter point should be included in the general advice which one makes a point of disseminating amongst all classes of the population.

The Preponderance of Male Stammerers Over Females.

D. GREEN, New York (*N. Y. Med. Journal*, April 13, 1901), presents a table showing the results of an examination of 256 adult stammerers, 229 of which were males and 27 females. The classification of the various forms of stammering has been made to depend upon the particular region of the vocal tract in which the faulty action causing the speech defect takes place. This table shows that faulty inspiration was the cause of stammering in about 61 per cent. in males and only 11 per cent. in the females. The most prolific source of stammering among men is a tendency to misdirected effort in the diaphragm, a condition which the table shows is rarely found among women. This is quite natural, for in the male ordinary, quiet respiration is effected almost exclusively by the activity of the diaphragm; but, in speaking, a more considerable emptying of the quantity of air in the lungs must take place, and this can be effected only through the combined processes of diaphragmatic and costal breathing. In females, costal breathing is the habitual mode of respiration, hence their lungs are generally well supplied with the quantity of air which is necessary for speaking purposes, and cases of stammering caused by deficient inspiration

accounts for the great preponderance of male stammerers over females.

Treatment of Laryngeal Tuberculosis at the Montefiore Home for Chronic Invalids.

W. FREUDENTHAL, New York (*Jour. A. M. A.*, March 16, 1901), states that to-day it is a pleasure to treat laryngeal tuberculosis, owing to the very gratifying results obtained by his method. The symptoms of pretuberculous laryngitis are anemia and hyperemia and swelling; and the strictest differentiation between the medicaments after this point has been decided assures the possibility of success. In the anemic stage, insufflation of zinc soziodol with sugar of milk, with applications of nitrate of silver, 3 per cent. solution, liquor ferri sesquichlor (1-30) and balsam of Peru, with spiritus vini rectificatus, are used. The application of stronger astringents is not recommended, for fear of exciting not only a hyperemia, but even an edema. In the hyperemic stage, creosote 5, spir. vini 10, glycerin 50, is applied. Tannin, alum and other astringments have also been used with benefit. In treating the advanced stages, lactic acid is not advocated on account of the severe pain it causes, and in its stead menthol-orthoform-emulsion is used in the following manner: The larynx is cleansed, if necessary, with a spray or swab. Three to six grains of saccharated suprarenal gland is insufflated into the larynx, and within one-half to one minute a pleasing cooling sensation is produced. Then the following emulsion is applied:

Menthol	1, 5, 10 or	15
Ol. amygal. dulc.....	30
Vitelli ovorum.....	25
Orthoformi	12.5
Aquae	100

Menthol, 1 per cent. is given at first and as rapidly increased as the toleration of the patient permits to 10, rarely to 15. To avoid the burning pain of this drug, the preliminary anesthesia is induced by suprarenal gland. Regarding surgical interference (curetting), in 29 cases 18 were not improved, in 7 slow amelioration occurred, and in 4 almost immediate improvement took place, and the final conclusion of the writer is that his patients were just

as well, perhaps better off without operation. In very advanced cases, where applications, on account of severe pain, are out of the question, olive oil (a glassful before breakfast) often produces most gratifying results. The introduction of heroin has been a decided advance in the treatment of cough in phthisical cases.

Notes on the Treatment of Diphtheria.

W. L. SOMERSET, New York (*N. Y. Med. Jour.*, April 20, 1901), bases his remarks on the treatment of diphtheria on the methods of the New York City hospitals. The evidence in favor of any of the specifics, mercury, chlorate of potassium, tincture of the chlorid of iron, alcohol, etc., prior to antitoxin, was very incomplete and unsatisfactory, and all of them have practically been discontinued. The use of antitoxin became general in 1895. From twenty-five hundred to 4,000 units are, in the author's opinion, the most generally accepted limits at the present time. With regard to local treatment, sprays and insufflations have been practically abandoned, and irrigations remain as the accepted method of local treatment. By this method of treatment, the attempt is made to cleanse the infected area, and to lessen pain. Hot irrigations also afford the best means of relieving the intense pain frequently present when the throat is much swollen by reason of the great amount of accompanying non-diphtheritic inflammation. Either a fountain or a handball syringe is necessary. The nozzles are best made of hard rubber. The nasal tip should fit the nostril tightly, so that the fluid introduced into one nostril shall escape from the other. The tip for the throat should be of sufficient length so that, after a preliminary washing of the mouth, it may be pushed well back, act as a tongue-depressor, and render it possible to wash the pharynx. After the trial of a number of different fluids, salt water was finally selected. The solution is made up to contain a teaspoonful to the quart; the temperature most frequently used is 110 degrees F. As to the frequency of irrigation, each is a rule unto itself. Some patients are benefitted and relieved by being irrigated every hour when awake; more frequently three or four times a day is often enough. Medicated steam is still in use, and when properly applied, is undoubtedly beneficial in some cases. Reference is made also to the

indications when the naso-pharynx, the larynx and the eye are the sites of the diphtheritic deposits.

Rectal Feeding in Throat Diseases.

A. C. BARDES, New York (*N. Y. Med. Jour.*, April 6, 1901), believes that nourishment and stimulation per rectum are applicable in all cases in which swallowing is difficult or painful, or in which an operation has been performed upon the throat and the wound is to be kept quiet. A person can be fed by the rectum solely for two or three weeks. It is of particular service in diphtheria, in tuberculosis of the throat, and after staphylorrhaphy, while in cases of circumtonsillar abscess, after the removal of tonsils or adenoids, or in cancer of the tongue or throat rectal feeding will be of great assistance. The quantity of food administered with each injection should range from one to six ounces, according to the age of the patient, and the enemata should not be given oftener than once in three or four hours. The composition of the enemata should be altered occasionally. When the rectum is irritable, from two to ten drops of laudanum or about fifteen grains of corn starch may be added to the enema. Whiskey or brandy may be incorporated with the enema when the administration of a stimulant is required. The advantages claimed for rectal feeding are as follows: 1. The throat, being at rest, is not irritated. 2. Struggling in children is obviated. 3. The progress of disease is shortened. 4. There is no danger of food entering the larynx. 5. The physician is able to give such food and stimulation as he wishes to give. 6. The food is not bolted, as it is when swallowing is painful.

SEVENTH ANNUAL MEETING OF THE AMERICAN
LARYNGOLOGICAL, RHINOLOGICAL AND
OTOLOGICAL SOCIETY.

A Case of Corrected and Internal Deformity of the Nose.

DR. T. PASSMORE BERENS, of New York City, presented a patient together with two photographs taken before the operation on the septum. The young man had come to him with a history of an injury received to the nose in early childhood. The bridge of the nose was very large, much elevated and deflected to the left, forming a large, disfiguring hump. The septum was deflected to the left, and adherent, causing almost complete occlusion of the nares. The nasal bones and part of the cartilages were laid bare, and the bony hump divided with a chisel. The parts were closed, and the wound dressed. The operation was in part a cutting, and in part a crushing operation, and had been done on March 5, 1901. Healing had been rapid.

DR. OTTO J. STEIN, of Chicago, said he understood a forceps had been used to break loose the nasal bones from their attachment to the frontal and superior maxilla. He had himself done this operation several times, and on the last two occasions had experienced great difficulty in breaking the bones loose from the superior maxilla. The condition brought about by the blows had been so severe that it did not seem to him that its repetition was warranted.

Thrombus of the Lateral Sinus.

DR. THOMAS J. HARRIS, of New York City, presented a case of thrombus of the lateral sinus. The patient was a man, about twenty-three years of age, who had been admitted to the hospital on April 3, with a history of pain and otorrhea for about one week, and a swelling in the neck. There was no elevation of temperature at the time, and he complained only of frontal headache. A few days later an exploratory incision was thought to be necessary, and accordingly the mastoid cells had been opened, but nothing had been found. On going into the sinus a long clot had been found and removed. From

that time to April 17 he had done well, but on a return of the symptoms the incision had been extended to the clavicle, and the jugular vein opened. No clot had been found until the facial vein had been reached. The man had been very ill for several days afterward, and had had a metastatic pneumonia. At no time had there been any tenderness over the mastoid, and no pus had been found in this region. The pain complained of had been almost wholly over the frontal lobe of the brain. The symptomatology of this case had been quite obscure.

DR. M. D. LEDERMAN, of New York City, said that one must not expect to find the classical symptoms either in sinus or mastoid disease. In one of his own cases there had been a running ear for ten weeks, but none of the classical symptoms of mastoiditis. The usual mastoid operation had been done, and no disease of the sinus found. Paracentesis had resulted in the withdrawal of blood. In his opinion, such a procedure was not sufficient; it was better to make a bacteriologic examination in addition. After a week or two in this case the sinus had been exposed and jugular thrombosis found. The vessels had been ligated near the clavicle, and opened but no blood found. Owing to the very bad condition of the patient, the complete operation had not been done. The patient had ultimately died. In another case there had been acute involvement of the mastoid, in a woman who had had one child. The sinus was curetted to within one inch and a half of the torcula, and jugular exposed. It was tied close to the clavicle and opened, and turbid fluid was found. About ten days afterward there had been an elevation of temperature and a swelling of the neck. On cutting down upon this, no pus was found, but an inflammation of the veins existed. Under a wet dressing the patient had made a good recovery.

DR. WALTER B. JOHNSON, of Paterson, N. J., said that he had had a similar case to the one presented by Dr. Harris. The patient had presented all the symptoms of homesickness, and in consequence she had been sent home. She had temporarily improved. When the true nature of the case had been discovered operation on the jugular had been advised, but had been declined and the patient had died.

DR. HARRIS said that it should always be remembered that it was not necessary for the patient to have a decided chill before one felt justified in making a diagnosis of involvement of the sinus. In the case under discussion there had been no chill, but there had twice been chilly sensations. With high temperature and chilly sensations one was warranted in making an exploration.

The Nature of Cancer.

DR. HENRY L. WAGNER, of San Francisco, presented drawings illustrative of the work done by an investigator in his city on the nature of cancer. About two months ago this gentleman, Dr. Eisen, had become infected with cancer, and was now practically in a dying condition. His important and interesting research had been completed about two years ago. This gentleman had even studied the development of the spores in his own case. Upward of 70 cases of carcinoma had been investigated in this way, and the results would be eventually published in detail in book form.

Traumatic Dislocation of the Left Arycartilage.

DR. H. L. WAGNER was the author of this paper. He said that such dislocation was very rare; he had only been able to find one such case on record. His patient was an old man, about seventy years old, who had been struck in the throat by the fist of a drunken soldier. The patient complained of great pain on deglutition, but there was no bloody expectoration. Under an alkaline spray and an ice compress the swelling rapidly diminished, and examination then revealed dislocation of the left arytenoid cartilage with fixation between respiration and phonation alone. There was no fracture of the cartilages.

A Congenital Deformity of Both Auricles.

DR. WAGNER also presented a photograph of this condition. The patient was a boy of five. There was an absence of the inner part of the upper helix and great over-development of the antihelix. The deformity was the result of an arrest of development occurring during the second and third months of intrauterine life.

DR. W. FREUDENTHAL, of New York City, said that he had seen several cases in which he had suspected fracture of the cartilages and in them crepitus had been elicited,

but in these persons as well as in others this crepitation was normal.

DR. WAGNER said that in his case there had been crepitation at first, but it had very quickly disappeared, whereas in cases of infarction or fracture that he had observed this crepitation had existed much longer. He was of the opinion that when the ary cartilage was slightly separated from the cricoid joint there would be crepitation.

Disease of the Upper Air Passage in Relation to the Mental Development.

DR. L. F. PAGE, of Indianapolis, Ind., read this paper. He said that the intimate relation between the blood spaces of the mucous membrane and the subarachnoid space had been thoroughly demonstrated, and an equally intimate relation exists between certain venous regions of the nose and the interior of the skull. The capacity of the lymphatics of this region for absorbing toxins was often observed in diphtheria, and impure blood was one of the causes of interference with mental development.

Engorgement of the erectile tissues and the irregularities of the nasal cavities often interfere with drainage, and so give rise to contamination of the blood. A study of the anatomy of the nasal fossæ showed plainly that this region should be a fertile source of reflex disturbance, and it was not difficult to imagine that such irritation might exert an important influence on the psychologic function of the brain. A bony spicule or an enlarged turbinate, by constant pressure and irritation, may cause exhaustion of its special centre, and gradually and secondarily affect the whole nervous system. Constant overstimulation meant exhaustion sooner or later. The author said that he had been often impressed by the mental defects exhibited by children with adenoids and enlarged tonsils, and the mental improvement which followed the removal of these pathologic conditions.

DR. PRICE BROWN, of Toronto, Can., said that the effect of the presence of adenoids or other hypertrophic lesions in retarding the mental development was very evident, and the fact should be noted and emphasized. Two children had been recently brought to him with the statement that while they had been bright and intelligent in infancy, they were becoming more and more dull and stupid. Ex-

amination showed the post-pharynx obstructed by adenoids, and the younger child had never breathed through his nose. These facts should actuate the physician to inform the parents of dull children regarding the reasons for such lack of mental development.

DR. GEORGE T. RICHARDS, of Fall River, Mass., said that he had recently seen a boy who had become so dull that he had refused to go to school any longer because he realized how backward he was. On restoring nasal respiration the child's mental condition had rapidly improved.

DR. E. E. HOLT, of Portland, Me., said that this brought up the necessity for having a school physician who should not be in general practice, and who should be usually well qualified and broadly educated. He thought every member should use his influence toward securing proper medical supervision at school. He also thought that the records which would accumulate as a result of such a system would prove most valuable from a sociologic point of view.

DR. SARGENT F. SNOW, of Syracuse, N. Y., said that the general practitioner should be impressed with the fact that not only did adenoids exert a bad influence on the general development, but that good ventilation of the olfactory region must be secured. Mention was made of a boy who was becoming dull mentally, yet examination showed only occlusion of the middle and superior air passages. General medical treatment and simple local applications had speedily changed the whole complexion of the case. He had a case of epilepsy which was undoubtedly due to intranasal pressure.

DR. FRED. C. COBB, of Boston, Mass., thought it was most important for the specialist to ascertain just what pathologic states give rise to reflex disorders, and what cases of this kind can be cured.

DR. JAMES F. MCCAW, of Watertown, N. Y., cited a case in which he questioned if the apparent mental deficiency were not due to deafness. He was of opinion that the mental deficiency found in children with adenoids was often not directly the result of the adenoids but of the associated impairment of hearing.

DR. L. A. COFFIN, of New York City, also thought the dullness was often apparent rather than real. There was frequently a loss of self-confidence, which was restored

by operation. The main feature seemed to be a lack of perception. The child with the stuffed-up nose was engrossed with himself, and could not give attention to his teacher without the exercise of more self-control than he could exert.

DR. FRED. T. ROGERS, of Providence, R. I., said that for some years it had been the custom in Providence to place the backward children of the city in special schools. At one time he had examined the children in one school, and about 70 per cent. of them had been found to be suffering from obstruction of respiration or from some high error of refraction. He personally knew of certain of these children who had been taken out of these special schools and returned to the ordinary schools because of the mental improvement resulting from treatment directed to these defects.

DR. ALVA B. ABRAMS, of Hartford, Conn., said that he found patients and physicians seemed to derive much comfort from the statement unfortunately often found in the text-books that adenoids and similar growths shrink up and give rise to less trouble in later life. While, of course, this was the result exceptionally, it would be better if physicians would forget that this happy termination ever occurs.

DR. PAGE, in closing, said that he had met with several cases in which children who had been late in talking had very soon acquired the power of speech after an operation for the removal of adenoids, and from this he inferred that the presence of adenoids sometimes interferes with the development of the speech centre.

Tubercular and Syphilitic Granulomata of the Nose.

DR. WILLIAM LINCOLN, of Cleveland, O., was the author of this paper. In it he reported two cases of granulomata of the nose, presenting similar appearances, though one was tuberculous and the other syphilitic in nature. The first case was that of a woman of forty-six who had contracted syphilis five years previously. Six months before coming under observation obstruction of the right nostril had begun. Examination showed a rounded, non-pedunculated tumor springing from the surrounding healthy mucosa. It bled easily and was not tender. On the hard palate were several characteristic syphilitic ulcers.

Microscopic examination showed typical tubercular tissue with giant cells. Physical examination of the chest was negative. The patient was put on iodid in increasing doses. Within three weeks the ulcers had healed and the tumor had markedly diminished. A month later the granuloma had completely disappeared. The second case was that of a woman, forty-five years of age, who had lost flesh and had night sweats. For some months she had been troubled by nasal obstruction. Examination showed a pale, red, sessile mass on the cartilaginous septum without ulceration. There was no history of syphilis. Microscopic examination showed the ordinary structure of tubercular granuloma with giant cells, but no tubercle bacilli could be found. A course of treatment with mercury and iodid had no effect, and accordingly the growth was curetted. About eight months later the patient returned with a similar condition in the other nostril, and in a similar site. The patient then gave evidence of tuberculosis of the lungs. It was possible to construe this case as one of primary tuberculosis of the nose. An interesting deduction was that the diagnosis could be made better by the consideration of the results of physical examination and treatment than by dependence upon the histologic examination. The treatment of tubercular granulomata should be by thorough curettage.

Some Observations Upon the Diagnosis and Treatment of Specific Disease of the Naso-Pharynx.

DR. P. S. DONELLAN, of Philadelphia, read this paper. He said that he had recently seen a case of chancre on the posterior arch of the palate, the diagnosis being evident from the appearance, and being confirmed by the subsequent course of the disease. There was nothing in the history to point to the manner in which infection had taken place. Ulcerations of the pharynx were common, and were associated with painful deglutition and obstruction of respiration, and the usual symptoms of "catarrh," the diagnosis usually made by the general practitioner after a superficial examination. He had been impressed with the importance of making a routine thorough examination of the naso-pharynx with the aid of White's palate retractor. A bacteriologic examination of the secretions of the lesion, and anti-syphilitic treatment would usually

enable one to make the differential diagnosis between tuberculosis, syphilis and diphtheria in obscure cases. Local and systemic anti-syphilitic treatment were called for in syphilitic diseases of the naso-pharynx. He was personally in favor of the hypodermic method, using bi-chlorid of mercury in doses of 1-16 to 1-4 of a grain. The injections are usually given deeply into the muscles of the lumbar region. He gave the mercurial as long as the disease showed activity, and then interruptedly for two years. The alkaline douche and black wash should be used locally. Where there was much dysphagia, ortho-form sometimes proved useful.

DR. GEORGE L. RICHARDS, of Fall River, advised that a thorough trial of anti-syphilitic treatment should be given in cases in which a diagnosis of syphilis had been made before resorting to any surgical interference, for, the chances were that such interference would then be found unnecessary.

DR. L. A. COFFIN, of New York City, referred briefly to two desperate cases of syphilis in the pharynx.

DR. CHARLES F. McCAHAN, of Aiken, S. C., said that in his experience most of the cases of tuberculosis of the throat are secondary, and he believed that the same was true of tuberculosis of the nose.

DR. PRICE BROWN, of Toronto, said that a gentleman had been referred to him by an oculist, some six months ago for nasal treatment, with the statement that the man had specific keratitis, and had been receiving anti-syphilitic treatment. Examination of the nose showed that the trouble there was traumatic, not syphilitic. He subsequently returned with a perforation of the soft palate, evidently the result of the formation and breaking down of the gumma. The history showed that he had become syphilitic ten years before, but after having been treated for a time had married. Both children were healthy, and the wife is said to be healthy. Under anti-syphilitic treatment the condition of the palate has been kept in check.

An Operation for Prominence of the Auricle.

DR. THOMAS R. POOLEY, of New York City, read a paper on this subject. The patient was an actress, twenty-eight years of age, and the operation had been done on both

ears at an interval of a few days, following closely the method of Dr. Edward T. Ely. An incision was made through the skin along the entire length of the furrow formed by the junction of the auricle with the side of the head. This was joined at each end by a curved incision, and the skin dissected off. An elliptical piece of the cartilage, 1-8 by 1-3 of an inch, was removed. The wound was united by seven interrupted sutures of black silk, four passing through the skin only, and the other three through both skin and cartilage. The operation was done under local cocaine anesthesia under strict asepsis. The wound behind the ear healed by first intention, and that in front by granulation. The first operation had been done on August 6, 1900, and the patient was well satisfied with the result, and he had been pleased with the method of operating.

DR. M. D. LEDERMAN, of New York City, reported two cases upon which he had operated. One was a large sebaceous cyst in which after the removal of the cyst the auricle had been bent over on the external canal. He had accordingly made a V-shaped incision over the mastoid and removed a portion of skin. Primary union had taken place. The other case was in a negro who had a keloid growth on the lobe of the ear.

DR. T. PASSMORE BERENS, of New York City, spoke of a case in which the protrusion of the ear was caused by an excess of cartilage of the concha. In that case he had excised a piece of cartilage nearly half an inch in its broadest part. The wound was closed simply by a buried suture, and was dressed with collodion, binding the auricle to the side of the head by a gauze bandage. At the end of the fifth day the wound had healed, but the bandage was worn for eight days longer, and by that time the ends of the cartilage had united. The operation had been done two months ago, and at the present time the extra fold of skin left after the operation had nearly disappeared. He was opposed to making an anterior as well as a posterior incision.

DR. J. F. MCKERNON, of New York City, said that he had seen a very similar operation done ten years ago by Dr. George Abbott, of this city, except that three sections of the cartilage had been taken out without affecting the

skin anteriorly at all. The result had been very good. Within the last three years he had seen another case also yielding a good result.

DR. POOLEY said that he felt sure that any operation which did not involve a considerable dissection of the cartilage would not succeed, but whether one should go through the entire concha or not was a question.

Clinical Notes on Adrenalin.

DR. NORTON L. WILSON, of Elizabeth, N. J., read this paper. He said that Dr. Takamine had first shown him the active principle of the suprarenal gland last October, and at the suggestion of the author the name, adrenalin, had been adopted. The preparation was now on the market in the form of a 1 to 1,000 solution of adrenalin chlorid, to which is added 5 per cent. of chloretone for its antiseptic and anesthetic properties. It is also furnished in the form of tablets, which are readily soluble. These are particularly useful for general use because of the ease with which a fresh solution can be made extemporaneously. Dr. Wilson said that for the eye he had used 1 to 10,000 and 1 to 5,000 only, and for the throat a 1 to 1,000 solution. One drop instilled into the eye produces a slight smarting sensation for about twenty seconds, during which time there is a noticeable hyperemia of the conjunctiva. In forty seconds the entire conjunctiva, both ocular and palpebral, is blanched, and this anemia lasts for about one hour. These solutions had shown no special effect on the cornea or pupil, and no anesthetic properties had manifested themselves. So far as could be observed, the sympathetic nerve was not stimulated, and the palpebral fissure remained unchanged. When used with cocaine the anesthesia produced by the latter is much deeper than it would otherwise be, probably because of the depletion of the vessels. If applied to the interior of the nose it blanches the membrane almost immediately, and in the examination of the nasopharynx it is of great assistance because of the shrinkage of the tissues thus produced. In profuse bleeding it is of little use because it is so rapidly washed away. In acute coryza it will relieve the swelling of the turbinates almost immediately and stop the profuse watery discharge, and for temporary relief in hay fever it has no equal. In a case of acute laryngitis coming under

his observation the voice was restored in twenty-four hours, and the pain very materially lessened by five applications of the spray. In acute pharyngitis and tonsillitis the relief is immediate, and is more lasting if combined with cocaine. Every operation within the nasal chambers could be made bloodless or nearly so by the use of adrenalin, but it must not be forgotten that in an hour or two afterward there will be some bleeding, though no more than if adrenalin had not been used. The patient should be given a solution of 1 to 10,000 or 1 to 5,000 to be used at home for two days. In grip or other acute inflammations of the mucosa it was valuable in relieving the swollen mucosa, and thus draining the cavities. In operations affecting the ear his experience has been limited to the removal of polypi and granulation tissue. Adrenalin was best used in combination with cocaine. He had never seen a case of cocaine toxemia when used with adrenalin. The solution can be boiled and so made sterile. He did not use it in powder form because it was then much more irritating and caused sneezing. The best results were obtained by the absorption of the solution through the mucous membrane of the nose, and not from the stomach.

DR. J. A. STUCKY, of Lexington, Ky., said that he had used adrenalin extensively in nose and throat work since last November. He had found that it did produce some anesthesia. When used with cocaine less of the latter was required, and the anesthesia lasted longer. He had found it particularly valuable in middle ear operations. He did not believe there was any more hemorrhage after its use than operations in which it was not used, except perhaps where there was a great deal of spongy tissue. He rarely used a solution stronger than one to three or five thousand; in subacute laryngitis he employed a solution of the strength of 1 to 10,000. An especially useful combination was with resorcin. He had also found it a very valuable remedy to combat the shock following anesthesia from chloroform or ether. In one case of this kind, occurring after chloroform, he had poured about half a drachm of a 1 to 5,000 solution on the tongue, and very quickly the heart action had been revived.

DR. T. PASSMORE BERENS, of New York City, said that he had been using adrenalin for about six months and had

found that it kept well in his office. He had purposely left one vial uncorked for six weeks, and had found it perfectly sweet and effective at the end of that time. It would blanch and clear up the Eustachian tube in those cases of acute middle ear catarrh of tubal origin. It had been his practice to inject through the catheter into the tube from three to 5 drops of the 1 to 1,000 solution, and then with a Pollitzer bag to blow it into the Eustachian tube. This would keep the tube open for a sufficient length of time to give the patient a great deal of comfort by allowing drainage through the tube. He had also used it hypodermically in two cutaneous operations about the face, and with good result, and also injected it beneath the mucous membrane of the cheek in opening the antrum of Highmore. Here it had answered well in preventing hemorrhage.

DR. M. D. LEDERMAN, of New York City, thought the drug was especially valuable in lessening the absorption of cocaine, and hence preventing the occurrence of cocaine toxemia. Such cases were not nearly so frequent since adrenalin had been in general use. In a case of nasal hydrorrhœa the local effect of the remedy had been shown when given by the stomach in conjunction with the local treatment. As it was an animal extract, he favored combining it with some cardiac stimulant to guard against the occurrence of cardiac weakness, when given internally, though it increases blood pressure.

DR. OTTO STEIN, of Chicago, said that he had recently used this remedy in a case of antrum disease, expecting to have a bloodless field, yet he had had about as much hemorrhage with a 1 to 1,000 solution as if he had not used it. He employed it in another case in which he had entered the maxillary sinus, and the hemorrhage had been just as profuse as if it had not been used. He had commonly employed adrenalin in the strength of 1 to 3,000, though sometimes in stronger solution, and he had kept it in contact with the tissues for ten or fifteen minutes.

DR. TALBOT R. CHAMBERS, of Jersey City, N. J., said that he had done the Gleason operation on the nasal septum a good many times, and had not observed the loss of over five or ten drops of blood from cutting the septum if adrenalin had been used. His method was to inject a few

drops of adrenalin (1 to 1,000 with 5 per cent. solution of cocaine), underneath the mucosa, and then the syringe was withdrawn and a few more drops injected. Finally, a few drops was injected under the mucosa near the anterior nares. Just before operating, some cotton with 20 per cent. cocaine is wiped over the hollow of the septum. There was no bleeding after cutting the septum under these circumstances. In one case in which he had done a secondary mastoid operation for purulent otitis media, a cholesteatoma had been found. It would have been almost impossible to have enucleated this entire without the use of the adrenalin, yet with the latter this operation had been performed with perfect success.

DR. H. HOLBROOK CURTIS, of New York City, said that while he thought the discovery by Dr. W. H. Bates of the suprarenal extract ranked with that by Dr. Carl Koller of cocaine, he had come to the conclusion that there were cases in which because of idiosyncrasy it acted very badly. He had had eight or ten cases in which there had been an absolute intolerance of adrenalin and of any of the preparations of the suprarenal gland. In one of the first of these cases a gentleman sneezed for two hours and a half after having used the suprarenal extract, and then on his return cocaine had been used and had given immediate relief. The sneezing had, however, returned in the evening, and had lasted for hours. He had had hay fever patients after using suprarenal extract for a few days, suffer from violent pain in the upper part of the nose, necessitating the discontinuance of the remedy. Last fall he had himself used the adrenalin spray for a few days, and then a terrible coryza had set in and had resulted in a genuine hay fever, which had only ceased on the discontinuance of the adrenalin. He had done over 100 septum operations, and when used with cocaine he had yet to see any untoward symptoms. He would like to know if intense pain or sneezing or violent coryza had been noted by others after the use of this substance.

DR. EDWARD B. DENCH, of New York City, said that he had not used the adrenalin, but had employed suprarenal extract. In all of his cases the effect had been entirely satisfactory as far as the control of hemorrhage was concerned. In one case, where owing to the age of the pa-

tient he had avoided general anesthesia, he had done an Asch operation with the aid of cocaine and suprarenal extract, and there had been practically no loss of blood. This has been his experience in many other cases. In middle ear work he had found suprarenal extract of great value. His method of using it was to saturate a small strip of gauze with the sterilized solution of suprarenal extract, and pack this through the speculum down upon the bleeding point. If left there for about a minute and a half it would be found that the field was practically dry.

DR. S. MACCUEN SMITH, of Philadelphia, said that he had found the drug of special value in cases in which it was used with cocaine to prevent cocaine poisoning. He was accustomed to apply a 20 per cent. solution of cocaine, but he never sprayed it into the nostril, but simply made a local application of this solution. Up to the present time he had no trouble with cocaine alone.

DR. WALTER B. JOHNSON, of Patterson, said that it was important that the field be made thoroughly clean before the application of the adrenalin. He could not see that there was any difference in the action of suprarenal extract and adrenalin, though on the score of convenience adrenalin was greatly to be preferred. He had not met with any idiosyncrasies, all of the cases in which he had used it having been very satisfactory. The effect of the adrenalin on the lymph channels of the eye was very important.

DR. MAX A. GOLDSTEIN, of St. Louis, said that occasionally a very acute irritation was produced by spraying a weak solution of drug on the mucosa. He would like to suggest to Dr. Takamine that this might be overcome by dissolving the adrenalin in an oil instead of using an aqueous vehicle. A 1 to 1,000 solution would be found useful in cases of acute congestion of the larynx, the acute laryngitis of singers. If a solution of this strength were sprayed upon the larynx just before singing the result would be most gratifying.

DR. L. L. MIAL, of New York City, said that he had used the suprarenal extract in the nose in two cases in which it had produced violent sneezing, lasting ten or twelve hours. The solution of adrenalin with chlorethane was distinctly anesthetic, and did not produce this sneez-

ing. He had used this combination in removing spurs from the septum and chalazion from the eyelids. It caused slight smarting for a few seconds, but was very soothing after the application of sulphate of copper in cases of trachoma.

DR. M. R. WARD, of Pittsburg, said that he had had some adverse results, but had not attributed them to the drug used but rather to a defective technique. He had met with some irritating effects from the remedy, but had never seen any hemorrhage after its use. In some plastic operations on the septum he had had some difficulty in the way of sloughing. Whether this was due to lack of cleanliness or to the disturbance of nutrition produced by the drug he was unable to say.

DR. R. C. MYLES, of New York City, said that he had been particularly fortunate in the use of powdered suprarenal extract during the past few years. In the last few months he had unfortunate results with the aqueous solution with resorcin, and had three patients leave him because of this. In one case he had used in the nose a 10 per cent. aqueous solution of suprarenal extract containing 2 per cent. of resorcin. It had caused very troublesome sneezing, and then the patient had disappeared. In another case the sneezing had lasted all night and all the next day. All these unfavorable results had occurred in connection with the use of the aqueous solution of suprarenal extract, never with the powdered extract. The solution had been boiled each time.

DR. PRICE BROWN said that he had not used the extract for about one year because he had met so frequently with irritation. He intended to try adrenalin.

DR. CHARLES W. RICHARDSON, of Washington, D.C., thought that all must have noticed certain constitutional effects, such as attacks of vertigo, with nausea and headache, resulting from internal administration of the drug.

Dr. JOCHICHI TAKAMINE, of New York City, was invited to take part in the discussion. He said that his work had consisted simply in the isolation of the active principle of the suprarenal gland. He had been the first one to isolate this active principle in the chemically pure crystalline form, and he looked upon this feat as only the beginning of great progress in organotherapy. It was probable that

the active principle of many other glands would be similarly isolated in the near future. The very fact of adrenalin being crystalline was Nature's certificate that it was a definite chemical substance. It was not his province to determine the best dose or strength in which it should be used. Chemically, the adrenalin was a very mild alkali, the alkalinity of which had been just neutralized. He could not, therefore, understand why it should produce such irritation as had been described by some of the speakers. Dr. E. Fletcher Ingals, of Chicago, was one of those who had complained to him of the irritation produced by adrenalin, but from a published article by Dr. Ingals he had learned that this physician had been in the habit of dipping his instruments into a formalin solution. This, of course, would readily explain the irritation observed. It was well known that distilled water produces a good deal of irritation in the eye, and also in the nose, and hence, the solution should be made slightly alkaline. The ordinary suprarenal extract contained considerable mineral matter, and its solution was therefore similar to normal salt solution. He had tried the plan of dissolving adrenalin in oil but had found it practically insoluble. He had, however, succeeded in making an oleate of adrenalin, but the moment this is sprayed it is liable to oxidize and to become quickly inert. It might be possible by the use of a device which would expose only five or ten drops to the air to make use of this oleate and so overcome the objection just mentioned.

DR. WILSON, in closing the discussion, said that he had observed none of the cases of irritation. He had seen irritation from the watery extract of the suprarenal extract, and yet in the same patient adrenalin had not produced this irritation. He had never succeeded in obtaining as active a preparation of the suprarenal extract after sterilizing it by heat. Such deterioration he had not observed with adrenalin, which could be sterilized repeatedly without lessening its efficiency. He had never observed sloughs after the use of adrenalin, though he had used this drug for two days after operation. He was inclined to think that some physicians used it too strong; one to five or ten thousand was strong enough for ordinary cases.

Empyema of the Right Maxillary, Ethmoidal and Sphenoidal Sinuses, With Subsequent Blindness of the Left Eye: Operation and Recovery of Sight.

DR. T. H. HALSTED, of Syracuse, N. Y., reported this case, and called attention to the frequent anatomic variations in the structure of the sinuses. In the past year many cases had been reported showing the relation of sinus disease as a cause, and eye lesion as a result. The case reported was that of a woman of forty-five who, on awakening, had found herself totally blind in the left eye. Examination showed swelling of the sheath of the left optic nerve, enlarged and tortuous veins and quantitative perception of light only. For about two years she had had some nasal catarrh, and some months previously had had an acute exacerbation characterized by a constant and free discharge or odorous pus. This pus had been discharged only from the right side. On examination he had found the left side clear. There was pus coming from under the right middle turbinate. Under transillumination the right maxillary sinus was completely dark, and both frontal sinuses were very translucent. The left pupil was widely dilated and there was exophthalmos. He had made the diagnosis of empyema of the right antrum, right ethmoidal and sphenoidal sinuses, with rupture and probable pressure on the optic nerve. He had advised immediate opening to relieve the pressure. Under cocaine anesthesia and with the aid of suprarenal extract the operation had been undertaken, but had been carried on with difficulty because of the free hemorrhage. A week after the operation she could count fingers, nasal respiration was much improved, and pus was coming from the right side of the nose. Two or three weeks later it had been necessary to enter the antrum and evacuate a considerable quantity of stinking pus. The antrum tube had been removed now about six weeks; she was entirely free from headache and insomnia and her general condition had greatly improved. She could read ordinary type with the left eye. From a study of this case it seems probable that the sudden onset of blindness was the result of the accumulation of pus in the sphenoidal cavity and pressure on the optic nerve running through the optic foramen.

A Case of Frontal and Ethmoidal Disease With Abscess of the Orbit.

DR. THOMAS R. POOLEY, of New York City, reported this case. The patient was a youth of nineteen who had come to him suffering intense pain around the right eye and that side of the head. The temperature was 104° F., and the pulse 120. Six years previously this eye had suddenly swollen, and had been relieved somewhat by an incision of the lid. Two years later the sinus had been opened to relieve the swelling. Dr. Pooley had operated under ether anesthesia, exposing the orbit. The sinus was found enlarged and was curetted. On entering the depth of the orbit one or two drachms of pus escaped. An opening was then made into the anterior ethmoidal cells, and through the infundibulum into the nose. A soft rubber catheter was then drawn through and the ends of the tube tied together. The wound was packed around the tube. This operation effected immediate improvement. Almost daily dressings were made, and at the end of two months healing was complete. Numerous nasal polypi were discovered after this operation, but they disappeared in a short time. The paper concluded with a reference to the common involvement of the accessory sinuses after scarlet fever, and the need for prompt and thorough treatment when there is external swelling. The patient was exhibited.

Empyema of the Frontal Sinus; Some Observations on Its Treatment.

DR. GEORGE L. RICHARDS, of Falls River, Mass., read this paper. He called attention to the fact that the frontal sinus varied in position, size and thickness. The danger to life of empyema of this sinus he considered to be very small. If exploratory puncture of the antrum were negative, then the source of the pus might be the anterior ethmoidal cells. Transillumination was of some value. As a rule, the entire anterior portion of the middle turbinate would have to be removed as a preliminary measure to treatment. These cases tend to get well if the drainage were thorough enough. The direction of the canal having been determined by means of a probe, a silver or hard rubber tube, curved like the probe, should be passed in and the sinus washed out. Where the purulent discharge

had lasted a long time and polypi had formed, it was more difficult to decide upon the best method of treatment. The anterior ethmoidal cells should be thoroughly destroyed with the curette. He had the best results from irrigation when he had used a solution of corrosive sublimate, 1 to 10,000. The question of operation must depend upon the presence of evidence of septic absorption, of symptoms of cerebral irritation or the recurrence of attacks of pain. He preferred to make the opening between the supra-orbital notch and the root of the nose and underneath the ridge, and preferred the mallet, chisel and curette to the surgical drill. The opening should be made as large as possible, and all of the ramifications of the sinus vigorously curetted. The best form of drainage was by the fenestrated rubber tube. The tube should be retained at least two or three weeks. It was best to keep the external wound open for a time.

DR. NEIL J. HEPBURN, of New York City, said that in Dr. Halstead's case the blindness might have resulted from a thrombosis of the central retinal vein. Unless the pressure had occurred very suddenly it could hardly account for the very sudden onset of the optic neuritis of that grade. An ordinary optic neuritis coming on from pressure would disclose a certain progressive loss of vision. He had witnessed one case of operation on the sphenoidal abscess by an eminent surgeon, in which the cavernous sinus had been accidentally opened. The hemorrhage had been most startling, but the surgeon had retained his composure, and had succeeded in controlling the bleeding by packing in a way which had led the eye witnesses to have less dread in the future of the occurrence of such an accident.

DR. TALBOT R. CHAMBERS said that many cases of frontal sinusitis if taken in hand early might be aborted before the occurrence of the purulent stage. The accumulation of mucus in a frontal sinus was the first step of a sinusitis, and could be readily evacuated. When entering the sinus and removing bone, it was better to use an instrument which could punch out an opening. A case was mentioned in which at one sitting he had taken away the inferior turbinate and the covering of the sphenoidal sinus, and opened the whole space into one cavity. By this pro-

cedure the mucous secretion could be removed in certain cases at an early stage.

DR. SARGENT F. SNOW said that two years ago he had a case quite similar to the one reported by Dr. Halstead. The difference was that the blindness had been a week in coming on. There had been so much pressure that the vitality of the bone had been lowered, and the operation had been done for the most part with Buck's ear curette slightly bent near the ring, a very safe instrument for such work.

DR. REDMOND W. PAYNE, of San Francisco, said that Dr. Richard's paper and exhibition of skulls called to mind some of his own work. He had endeavored to determine the number of anomalies met with in this region. In the formation of the sinus itself was to be found the reason for many failures. In some of the sinuses that he had examined the depth of the sinus had run back over the orbit almost to the optic foramen, both plates being exceedingly thin. In some instances in which the sinus had run back deeply it had been divided into several compartments by bony septa. Such cases showed at once the impossibility of eradicating the disease by any opening below without an attempt to reach it with the curette. The external wall should be removed either entire or in section, thus exposing the seat of the disease, and admitting of thorough exploration. If the mucous membrane lining the sinus had undergone fungus or polypoid degeneration, and two-thirds of it only had been removed, the patient would not be permanently cured. Many of these cases of chronic suppuration would go on for years. Not many cases of meningitis have been reported in this connection, but as there were many cases of meningitis following chronic suppuration of the ear he saw no reason why the same should not occur in cases of sinus disease.

DR. CHARLES W. RICHARDSON, of Washington, D. C., spoke concerning operative intervention in cases of purulent discharge from these sinuses. When pus issues from a closed cavity the proper course was to insist upon the opening of the sinus and removing the diseased condition found there. It seemed to him that conservatism was not at all in place where there was a purulent discharge from these sinuses. In a sinus so accessible as the frontal there

should be no question as to the wisdom of operative intervention. A very slight purulent discharge might be connected with very extensive disease. In other regions of the body in which operative intervention was much more dangerous the general surgeon did not hesitate, and he could not see why the rhinologist should be so backward about operating. No one hesitates about opening an abscess of the mastoid. These operations should be done promptly and thoroughly as possible.

DR. R. C. MYLES said that free drainage was far better than anything else. He had always been opposed to over-curetting of these sinuses, for he was of the opinion that by such treatment the period of convalescence was greatly prolonged or indefinitely postponed. By such curetting the mucosa and periosteum were removed, and the reformation of these tissues not only takes a long time but is apt not to re-form in many crevices, and this leads to a permanent discharge. Extensive destruction of the ethmoid cells or of bony tissue intended to protect the frontal sinus usually made the patient's condition worse than before the operation. According to his experience, the best way of obtaining free drainage was by removing the anterior end of the middle turbinate, and also the median wall of the anterior ethmoidal cells. This alone with proper irrigation, would effect a permanent cure in the majority of these cases. It was his practice to remove the anterior wall of the sphenoidal cells rather thoroughly, never curetting the upper wall. In a few months the opening would close by contraction of the mucous membrane, but it could be quickly and almost painlessly opened with a bistoury. In the unfavorable frontal cases, the great obstacle was the nasal process of the superior maxillary bone. Entrance above the orbit was the straightest way for removing this process. This could be done well only by making the opening above the supra-orbital ridge. He formerly did the infraorbital operation and had experienced great difficulty in getting rid of this hard, bony process. In his opinion, all cases of acute empyema of these cells should be carefully studied before attempting operations. In chronic cases, conservatism should be given a trial. Frequently irrigation would be sufficient, or the mere extraction of a tooth, and it should

be tried first, care being taken to explain to the patient that it was in the nature of a preliminary operation.

Observations Upon the Treatment of Stricture of the Lacrimal Duct by Electrolysis.

DR. L. L. MIAL, of New York City, read this paper. He said that he had found silver the best metal to use, and preferred to place the positive electrode on the wrist. As a stricture was never the whole length of the canal, it was a matter of much importance to apply the current only to the narrowed portion. He had used the volt selector, the amperemeter and a rheostat, with the Edison 110-volt current. Any one could satisfy himself of the relaxing effect of the current by introducing an instrument which is tightly grasped, and then noting how loosely it was held after the passage of the current. Each séance should last from thirty seconds to three minutes. Several illustrative cases were reported. The author claimed that electrolysis is harmless if used properly, that it is antiseptic in its action, that it is much less painful than the usual mode of passing the probe, and that it dissolves and relaxes strictures much better than any other method, thus diminishing the danger of tearing the mucous membrane and making false passages.

DR. T. R. CHAMBERS asked if Dr. Mial had used the combination of cocaine and adrenalin in the lacrimal canal. He had found that if it were passed in by a small bougie it would be possible to pass a No. 2 or 3 probe. The electrolytic treatment of these cases was new to him, and called for serious consideration, even after making all due allowance for enthusiasm.

DR. N. L. WILSON thought the advantage of electrolysis was simply to relieve the stricture. When he had begun to use electrolysis in the Eustachian tube for this purpose it had occurred to him that the method was applicable to the lacrimal duct, and he had used it in that duct with equally good results as regards relieving the stricture.

DR. C. DUNBAR ROW, of Atlanta, Ga., said that he had used electrolysis in the Eustachian tube, but not in the lacrimal canal. He would like to ask whether these electrical bougies are passed through the upper or the lower canaliculus, and whether the latter is always slit before the passage of the bougie.

DR. E. E. HOLT, of Portland, Me., said that the treatment of these cases was exceedingly difficult at the best, and any improvement should be welcome. In 1881 he had spent some time with Dr. Bowman, and had studied the subject very carefully with those attending the Seventh International Medical Congress in London at that time. It was quite amusing to note the different methods of treatment by those living in different parts of the world. He noted that Dr. Bowman had had some of his cases under treatment a very long time, one of them for fourteen years. He had remarked at the time that quicker methods were demanded in America. Dr. Holt said that his routine method of treating lacrimal disease of long standing was to dilate the lacrimal canal under ether anesthesia up to No. 13 Bowman, and put in a lead style. He believed, however, that in many cases a good deal could be accomplished by electrolysis.

DR. MIAL, in closing, said that he had used adrenalin and cocaine in the lacrimal duct, and while it allowed one to pass the probe with less discomfort to the patient, it had no effect on the stricture. He had used the electrical probe in both the upper and lower canaliculi, but for stricture of the lacrimal duct he always used the lower canaliculus, and the great advantage of the electrolytic method was that one could easily dilate to No. 5 or even to No. 8. When an insulated electrical bougie of such size could be introduced the result was exceedingly good, and was obtained without risk. One should not lose sight to the fact that the strictures are relieved. Why the epiphora was not relieved in certain cases he was not prepared to say. He was of the opinion that a stronger current could be used in the Eustachian tube than in the lacrimal duct. He could not give the reason for this, but probably it was because there was more moisture in the lacrimal passages.

A Few Remarks on a Generally Unrecognized Ear Disease.

DR. H. A. ALDERTON, of Brooklyn, N. Y., read this paper. He said that the mucous form of otitis occurs more frequently in adults than in children, and often after an attack of grip. There was often little or no pain, but a stuffy feeling in the ear and a diminution of hearing. Crackling sounds on blowing the nose or swallowing

was not so common as in the serous variety. Tinnitus was apt to be severe, and there might be vertiginous attacks. Inspection showed but little congestion, but the membrane in its normal condition, though lacking lustre and having a dull gray color. There was a dull looking area of hyperemia about the handle of the malleus and at the periphery of the drum membrane. In most cases the tube was obstructed. There was a noticeable disproportion between the power to hear a whisper and the spoken voice. The upper tone limit was not much affected. The pulse and temperature were practically normal. The condition might last from a few weeks to a number of years. Inflation of the tympanum improved the hearing. On incision of the tympanic membrane there might be no discharge, but on inflation a stringy tenacious discharge made its appearance in the canal, and the hearing was immediately greatly improved. Douching through the external canal had seemed in his experience to do only harm. The treatment par excellence was incision and evacuation of the tympanum with measures directed toward improving the condition of the naso pharynx. The drum membrane was often healed at the second dressing.

Tuberculous Otitis Media, Mastoiditis and Meningitis in an Otherwise Apparently Healthy Adult.

DR. J. F. MCCAW, of Watertown, N. Y., made a brief report of this case. The patient, a male of forty-five years, he had first seen on December 11, 1900. About one year previously, without assignable cause, a thin discharge had begun from the left ear, and at intervals of two or three months there had been an attack of slight pain in the ear and sensitiveness in this region, with an increase in this discharge. There had been no special change in his general physical condition up to seven weeks before coming under observation, when he had had an attack, supposed to be the grip. About this time he had had one of the attacks of pain around the left ear, and for the last week had become lethargic and weak. On examination he could not be aroused from his stupor, but responded to stimuli. There was tenderness over the ear and a foul discharge from the ear. The tympanic cavity was filled with granulation tissue and pus. No glandular enlargements were

observed. The diagnosis of cerebral abscess was considered probable. The mastoid operation had been done the same afternoon, and this had revealed extensive bone destruction. The wall of the sigmoid sinus and the meninges of the brain were exposed during the operation, and were found to be studded with numerous miliary tubercles. The patient died twelve hours later. At the post-mortem examination of the lungs, liver, spleen and kidneys were found free from tubercle, and the mesenteric glands not enlarged. Scrapings from the mastoid showed the presence of tubercle bacilli and streptococci. An examination of the brain was not permitted. The experience of most observers seemed to indicate that primary tuberculosis of the ear occurs infrequently.

DR. GOLDSTEIN, of St. Louis, reported three cases observed by him during the past ten years, of mastoiditis which might possibly be considered primary. The first case had been reported about nine years ago. The patient was a little colored boy in whom the sequestrum contained the cochlea and part of the semicircular canals. Numerous tubercle bacilli were found in the discharge from the ear, and physical examination failed to reveal a tuberculous process in other parts of the body. Eight months later this child died of pulmonary tuberculosis, so that it could not be said that the case was really one of primary tuberculosis of the ear.

(Concluded in Next Issue.)

BOOK NOTICES.

Klinische Vorträge aus dem Gebiete der Otologie und Pharyngo-Rhinologie. Jena, Verlag von Gustav Fischer. 1901.

Viemter Band. Fünftes Heft. Zur Behandlung der "thockenen" Mittel Ohr affectionen insbesondere mit der federnden Dracke Sonde. Von Prof. Dr. L. Jacobson. Berlin.

The author traces the use of massage by sound from the time of Lucas (1884) to the present day. A newer model is illustrated and the method of employing it explained. He cites several cases to prove its therapeutic power. Jacobson advocates as a special service to the general practitioner, superior in worth to complicated mechanical apparatus, and easy to apply.

The paper is a partisan appeal, but Jacobson's name guarantees thorough scientific reasoning and a claim based on both experience and comparison.

A. B. HALE.

Klinische Vorträge. Vierter Band; sechstes Heft. Die Entzündungen des Äusseren Gehörganges. Von Dr. Wm. Grosskopf. Osnabrück.

A decided resumé of the abnormal conditions found in the external meatus. Grosskopf is an advocate of the tampon, especially one saturated with an oil of acetate of albuminum. The ground is covered thoroughly, and for a schematic presentation of conditions as here found, is well worth reading.

A. B. HALE.

Erschütterung des Ohrlabrynthes (Commotio Labarynthi) von Dr. R. Spira. Krakau.

Klinische Vorträge aus dem Gebiete der Otologie und Pharyngorhinologie. Fünfter Band; Erstes Heft. Verlag von G. Fischer Jena, 1901. 1 Mark 80 pf. (45 ets.).

The author has practically exhausted the literature of fact and theory concerning functional disease of the hearing apparatus (labrynth) and in doing so he gives us an interesting essay of 70 pages. In dealing with the subject he adopts the classical method of subdivision into etiology, pathogenesis, diagnosis, prognosis, medico-legal significance, prophylaxis and treatment. Fortunately he makes no attempt to exploit a theory of his own, nor to combat any theory of others, but frankly acknowledges that the subject is as yet too obscure for exact dogmatic statement. Neither does he pad the article with cases. In the treatment advised he is more hopeful than is the average text-book and suggests one novel method (exercises to overcome vertigo) which ought to attract attention. If much originality is expected, it will not be found, but if thoroughness is what the reader is after, no better essay has been published.

A. B. HALE.

The Year Book of the Nose, Throat and Ear.

The Year Book of the Nose, Throat and Ear. Edited by G. P. Head, M. D., and A. H. Andrews, M. D. The Year Book Publishers, Chicago.

It was the intention of the editors to give a fair presentation of the progress in nose, throat and ear work for the past year and this has been faithfully carried out. Abstracting has been done with discretion and not all articles published have been herein epitomized. All papers of importance, however, have been referred to under the proper heading, so that those interested may look them up. Subjects occupying a prominent place in the literature of the year have been given a corresponding emphasis and prominence in the book. The editors have done a large share of original work, although they have availed themselves of abstracts from other sources in some instances.

The editor of the nose and throat department observes that the journals are showing a higher grade of contributions on these subjects and many articles from original investigators have been published.

